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THE LANCET

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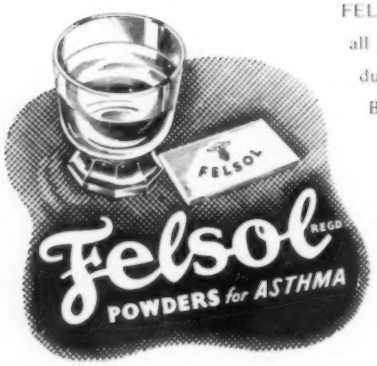

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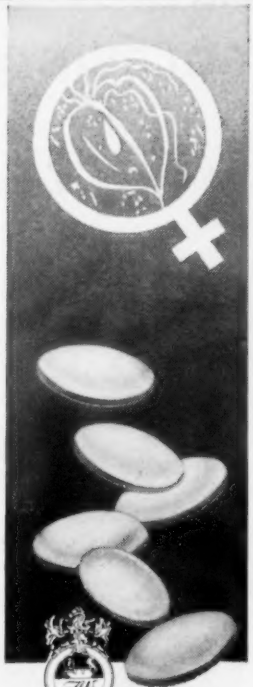

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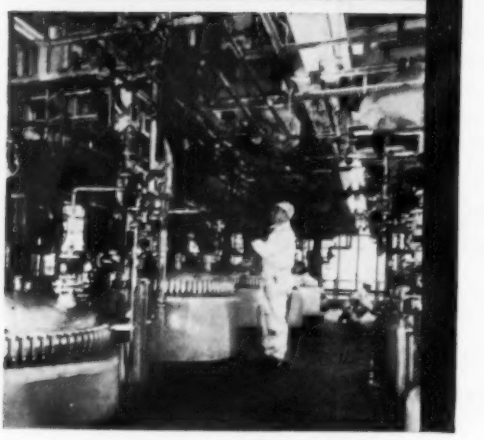

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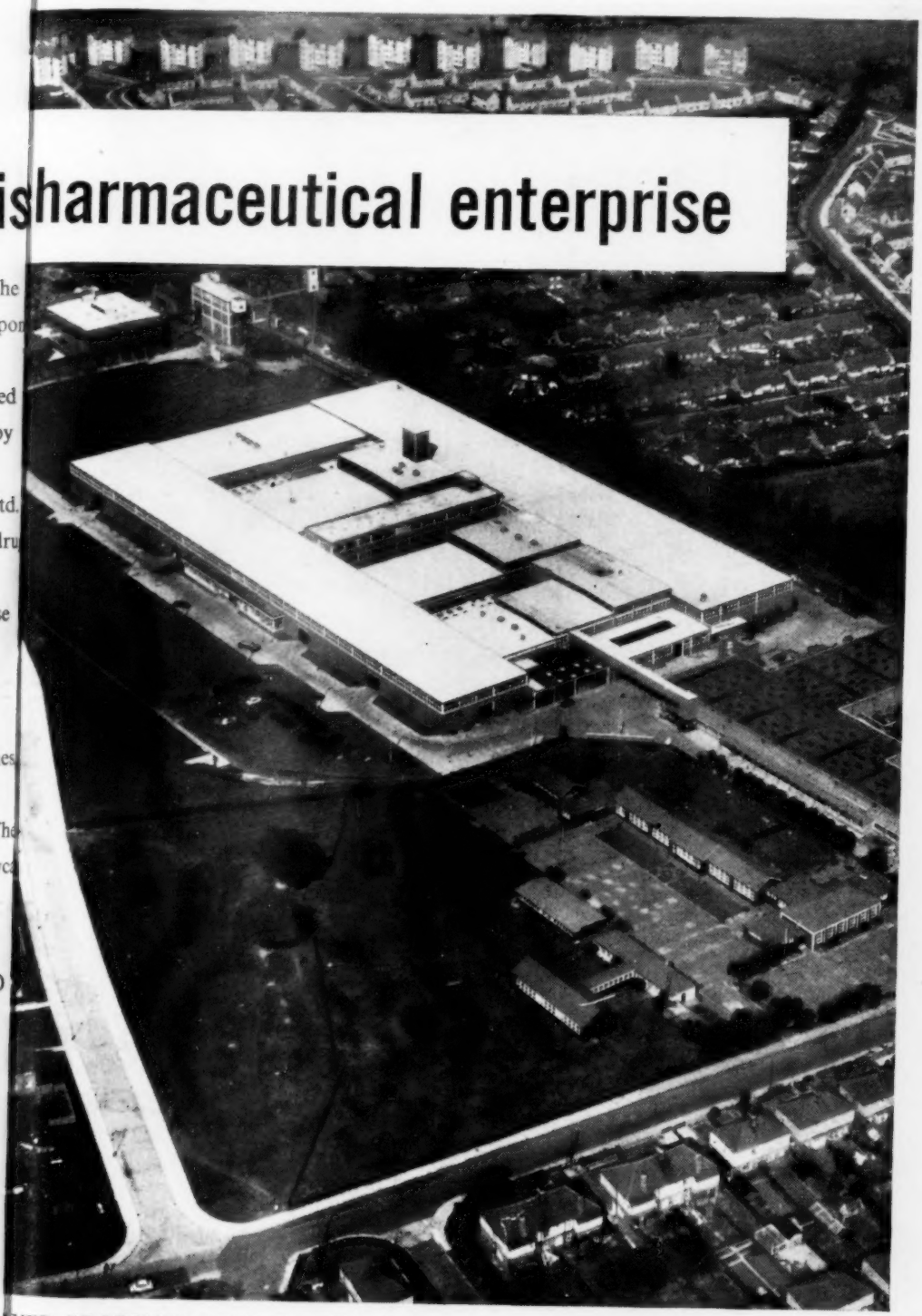

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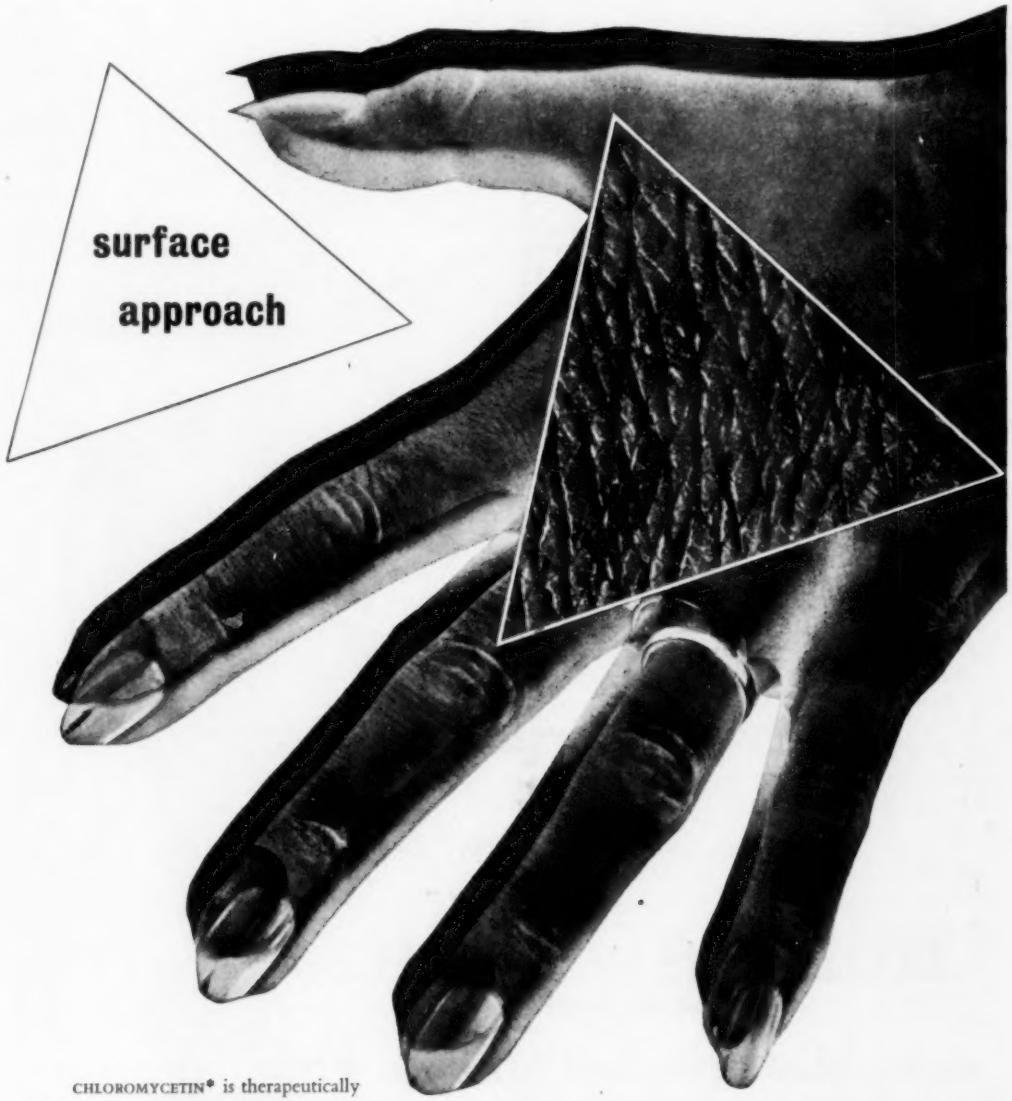

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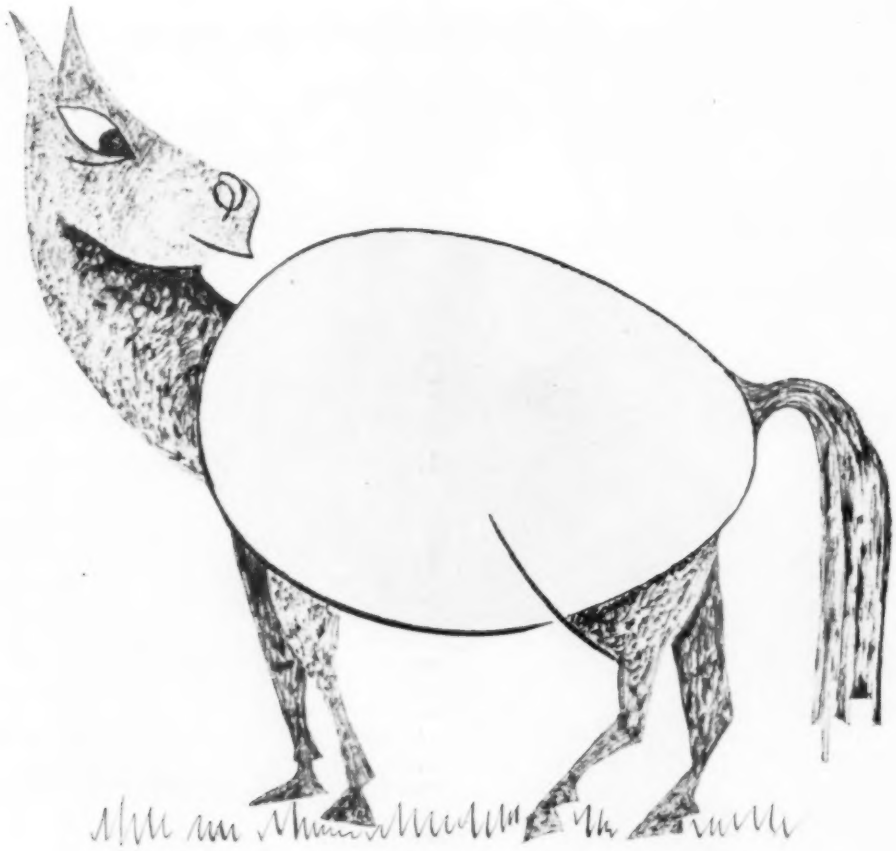

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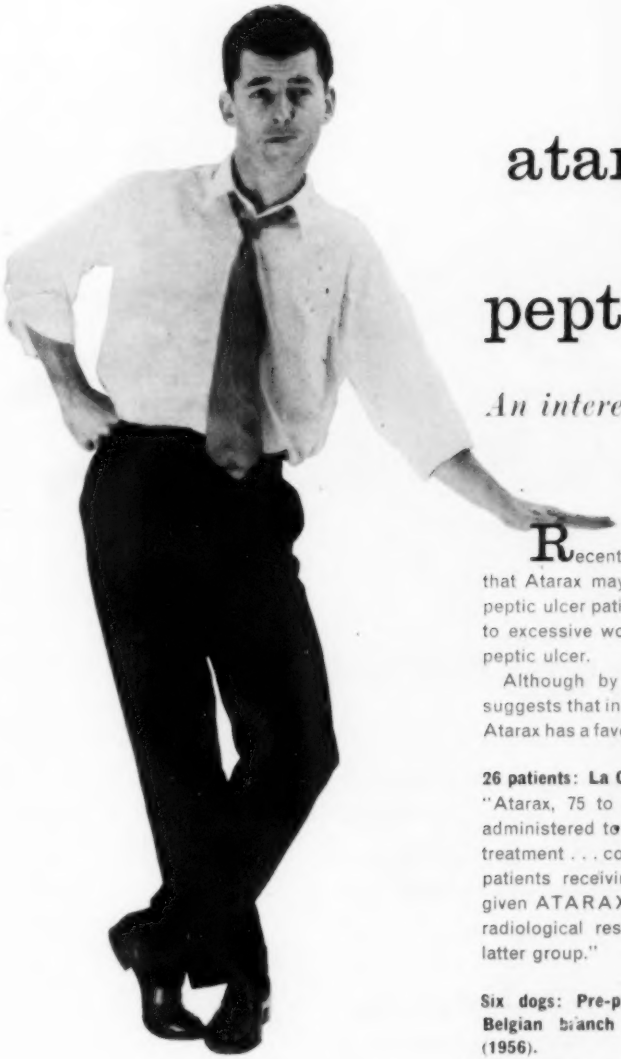

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†*The British Encyclopaedia of Medical Practice, 2nd Edition, Volume 10, page 221.*

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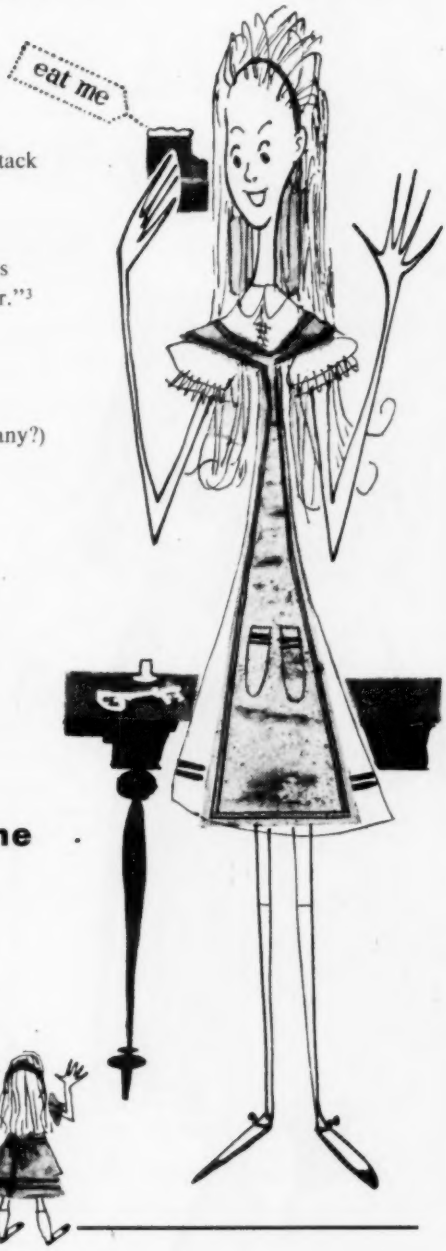
Migraine in Wonderland

The fantasies of altered body size and shape in *Alice in Wonderland* are like those experienced by some migraine patients.[1] Disorders of body image may be found in migraine either as an aura to an attack or as a migrainous equivalent.[2]

Lewis Carroll himself suffered from migraine,[1] and it may well be that "Alice trod the paths and byways of a Wonderland well known to her creator."[3] If that is so, English literature is the richer for Mr. Carroll's migraine.[2]

Curiouser and curiouser...
to picture Alice's adventures (would she have had any?)
if Cafergot had been at hand
for Lewis Carroll's migraine...

[1] *J. nerv. ment. Dis.* (1952) **116**, 346 [2] *Lancet* (1956) **1**, 794
[3] *Canad. med. Ass. J.* (1955) **73**, 701



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**Therapeutische Umschau 1952, 8, 143.*

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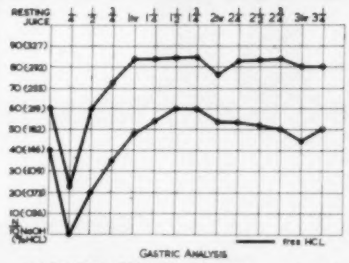

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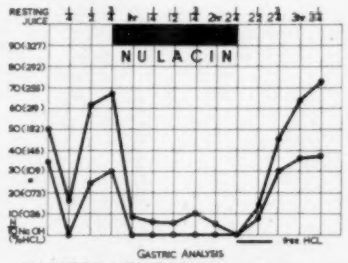

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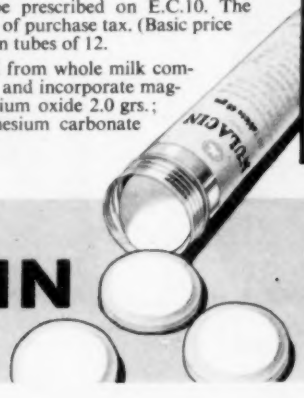

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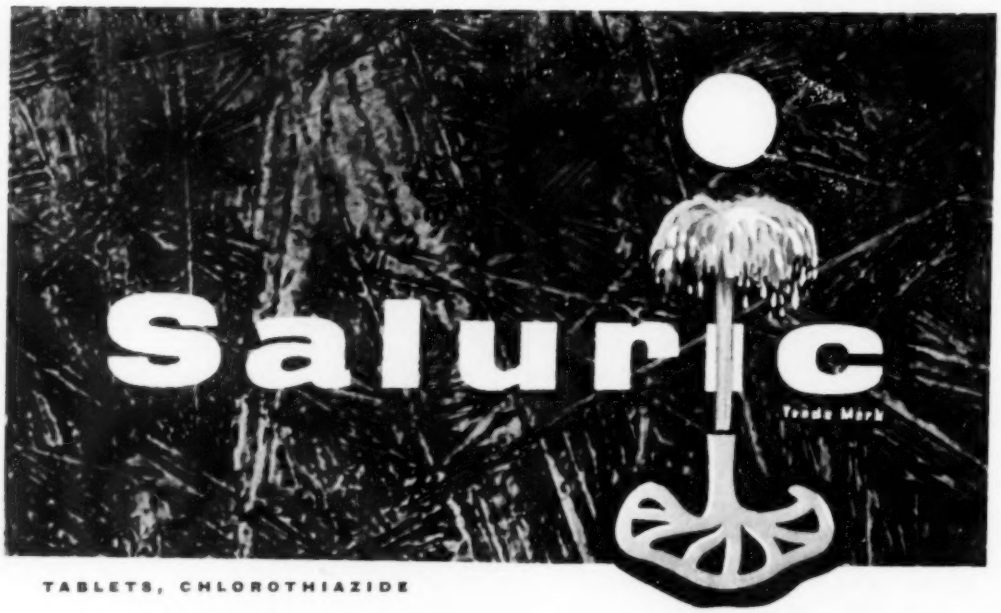

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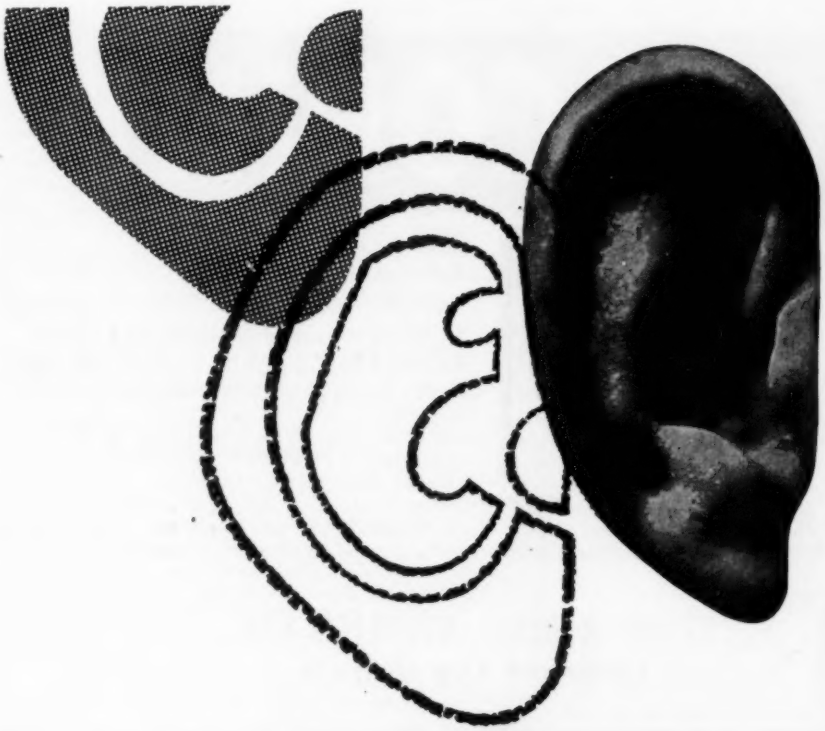

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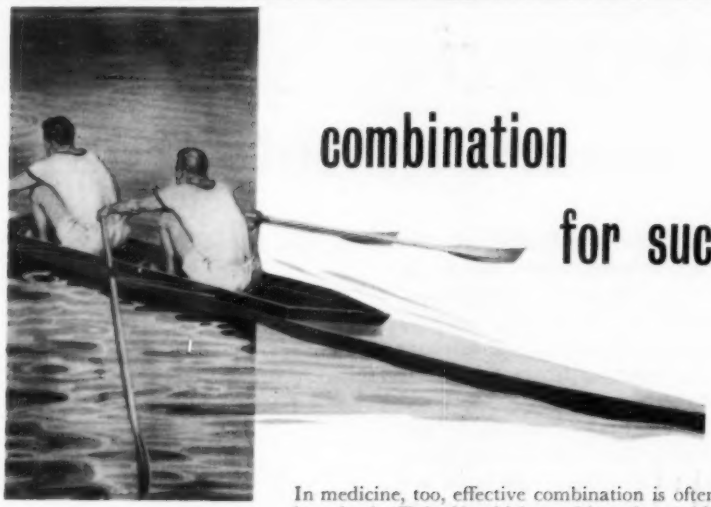

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R. S. ILLINGWORTH
M.D. Leeds, F.R.C.P., D.P.H., D.C.H.
PROFESSOR OF CHILD HEALTH IN THE UNIVERSITY OF SHEFFIELD

SINCE Bakwin (1942) wrote on the loneliness of children and Edelston (1943) on the results of separating them from their parents, much has been said about the psychological effect of admitting them to hospital. Among important papers are those of Powers (1948), Bowlby (1951), Jackson et al. (1952), Prugh et al. (1953), Capes (1955), Ylppö et al. (1956), and Gofman et al. (1957).

Exaggeration of Effects

On one hand, there is a tendency in some quarters to exaggerate the psychological trauma. Prugh et al. (1953), for instance, wrote that " most of the children showed adaptive difficulties which persisted for weeks or months after". I agree with Bowlby et al. (1956) who, after a carefully controlled study of 60 children under 4 years of age spending a long period in a sanatorium, concluded that

" Some of the workers who first drew attention to the dangers of maternal deprivation resulting from separation have tended on occasion to overstate their case. In particular, statements implying that children who experience institutionalisation and similar forms of severe privation and deprivation in early life commonly develop psychopathic or affectionless characters are incorrect."

If this is true of long-continued institutional care, it is much more likely to be true of a short stay in hospital. Exaggeration of the risk of harm can cause much unnecessary anxiety in parents and even delay necessary hospital treatment. It can also lead other people to minimise this risk or even deny its existence.

At the Children's Hospital, Sheffield, we follow up all children who have been discharged from the medical wards; in my experience it is exceptional for a child, on return home, to show behaviour problems which can be directly ascribed to his stay and experiences in hospital. The only examples of severe persistent behaviour problems which I have been sure resulted from psychological trauma in hospital were in children who had been in long-stay orthopædic hospitals or infectious-diseases hospitals, in which no visiting was allowed.

It is, of course, true that children cry in hospital. Illingworth and Holt (1955) found that the majority of young children cry when their parents leave at the end of visiting-time, and that the majority show some emotional disturbance while in hospital; but that is quite different from suggesting that the experience of hospital commonly leads to behaviour problems which persist for weeks or months after discharge.

Minimisation of Effects

On the other hand, some people tend to minimise the psychological trauma. This tendency is seen especially among those who oppose daily visiting of children in hospital.

Some time ago I set the following question in a pædiatric examination paper for nurses: " Discuss the causes of crying in children in hospital." I was told that this was a most unfair question to set, because nurses had no experience of the problem, " for children do not cry in children's wards". I have heard it said that Robertson's film *A Two-year-old Goes to Hospital* gives an entirely untrue idea of what happens in a children's ward and is a gross exaggeration of the truth—a view with which I disagree.

It would be indeed surprising if small children were not upset by admission to hospital. They are particularly firmly attached to their parents in the first three or four years, and at no time do they feel the need of their parents' comforting love more than when they are feeling poorly. It is unfortunate that it is just at this time that they are liable to be separated from their parents by admission to hospital. Anyone, furthermore, is less adaptable when ill.

I imagine that every pædiatrician has seen behaviour problems which seemed to be directly ascribable to a period in hospital; and no-one could fail to observe the fretting and misery shown by some small children in hospital. The problem of psychological trauma to children is real, and the fact that only a small minority show any ill effects after discharge must not lead us to minimise it. Obviously we ought to do all we can to reduce such trauma, and to make the children's stay a happy one.

Nature of Reactions

Short-stay Hospitals

At all ages, some children seem to be quite unaffected by admission to hospital: they settle immediately and seem to be perfectly happy. With young children, however, this is exceptional; the following reactions are commonly seen:

(1) Persistent or frequent crying, and calling out for the mother. Crying on departure of the parents after visiting-time.
(2) Subdued and abnormally quiet behaviour in a child normally boisterous and happy.
(3) Subdued and quiet behaviour until an attendant, doctor, or nurse approaches, when crying starts.
(4) Subdued and quiet behaviour until the parents come, when crying starts.
(5) Poor appetite, and in infants a failure to gain weight, despite absence of causal disease.
(6) The development of enuresis or aggressiveness, mostly after a fairly prolonged stay.

It is difficult to say with certainty what the child is thinking. One feels that some small children are not altogether convinced that their stay in hospital is only temporary; and foolish statements to a child that he will " go home tomorrow ", when that is quite untrue, are bound to make him more and more sure that he is being left permanently in hospital. I remember as a student being asked pitifully by a small boy: " Doctor, when will it be tomorrow? " He had been told repeatedly that he would go home tomorrow, but because of his illness (osteitis in pre-penicillin days) tomorrow was a very long time in coming.

Long-stay Hospitals

The symptoms resulting from long separation from parents in the first three or four years have been adequately described by Bowlby (1951) and Robertson and Bowlby (1952). In an institution the predominant ones are quiet subdued behaviour and lack of spontaneous play and gaiety. These children are " too good ".

I shall never forget a visit to a home for illegitimate children in a foreign city. In a first-floor room were 20 or 30 children,

* A lecture given to the Central Council for Health Education, Jan. 23, 1958.

aged 1 to 4 years, sitting on the floor like Madame Tussaud's figures: they were quite still and were not laughing, crying, or talking. There was no furniture in the room, apart from cots with solid wood sides which prevented the children in them from seeing out. There were no toys. On floor level there was an open french window, with nothing to prevent a child from falling out on to the concrete path below; but when a psychiatric friend of mine and I exclaimed about this, we were told that no child ever had fallen out. We doubted whether one ever would: the effects of emotional deprivation were so gross that the children did not move.

There have been several papers about behaviour problems in children on return home from hospital. The symptoms include regression to infantile behaviour, such as enuresis and excessive clinging; fear reactions, including night terrors; and negativistic reactions and signs of insecurity, such as temper tantrums, speech disturbances, and destructiveness.

The late psychological effects of a long stay in hospital have been amply discussed by Bowlby (1951).

Ætiology

A big difficulty in considering this subject is to know how much of the crying or abnormal behaviour observed should be ascribed to the hospital experience and how much to the parents.

Parental factors which may lead to or aggravate psychological trauma in children are:

(1) Any disturbance of the parent-child relationship before admission or after discharge from hospital. There is no doubt that the better this relationship and the more secure the child, the less likely is he to be significantly disturbed by a spell in hospital. Before ascribing his crying in hospital and other bad behaviour to the trauma of his hospital experience, one needs to know what the child is like at home, and how he behaves there.

(2) Lack of preparation or inadequate preparation of a child for admission when he is old enough to understand.

(3) Unwise or excessive preparation by the parents as a result of anxiety about the effects of admission, and transference of parental anxiety to the child.

(4) Threats made by the parents that if the child does not do what he is told he will no longer be loved, will be changed for another child, will be taken to the doctor, or, worse still, taken to the hospital and left there.

(5) Lack of daily visiting by the parents when visiting is allowed. This will be referred to later.

(6) Transference of parental anxiety to the child during a visit. Unwise remarks and promises by the parents during visiting-time which cannot be kept—e.g., concerning the day of returning home.

(7) Parental attitudes on discharge of the child. These include spoiling the child, with overindulgence and indiscipline, especially when he has recovered from a dangerous illness.

Apart from this, it is very hard to decide whether behaviour problems are due to the hospital experience or not. In the first place, all children have behaviour problems, and the fact that a problem develops after a spell in hospital does not prove that it is due to the stay in hospital. Secondly, it is easy to ascribe bedwetting after discharge from hospital to psychological trauma, when in fact it is due to failure of the nurses to attend to the child's toilet needs. In hospital it is easy to have wet nappies and sheets washed; and this, combined with a shortage of nurses, may lead to neglect of a child's toilet needs. Thirdly, as Ylppö et al. (1956) point out, parents who have been pleased with the recovery of a child in hospital are not so likely to blame the hospital for a child's bad behaviour as are parents who have been in some way dissatisfied, or have disliked a ward sister, or have had other complaints. It is very difficult to arrive at the truth. Lastly, children may have been alarmed, before admission, by foolish remarks by their school friends, who have provided them with lurid and totally incorrect accounts of operations.

We may summarise the relevant factors thus:

(1) The age of the child. The younger he is the greater is the risk of psychological trauma.

(2) The length of his stay in hospital. The shorter the stay the less likely is he to suffer any lasting psychological harm.

(3) The parent-child relationship at home.

(4) The nature of the experiences in hospital.

(5) The nature of the illness. (The significance of this is uncertain.)

(6) The personality of the child. This very important factor is apt to be forgotten. It is easy to ascribe a child's undesirable behaviour to mismanagement at home when in fact it is chiefly due to inherited personality characteristics. Whether his personality depends on hereditary or environmental factors, it is almost bound to have a bearing on his response to his experiences in hospital.

(7) The preparation of the child for hospital and the attitude of the parents on his discharge.

Beneficial Effect of Admission to Hospital

Of the many papers on the effects of hospital on children, hardly any mention the psychological advantages. Yet there is no doubt that many children benefit from their experiences. They profit from the companionship of others, from the making of new friends, from the wise guidance of doctors and nurses (especially if they had some disturbance of behaviour before admission), and from the learning of independence. Ylppö et al. (1956) carefully observed 50 children under the age of 7 who were admitted for minor operations. They found that adverse changes after discharge were exceptional, and that behaviour improved in many. Some were more "irritable" after discharge than they had been before admission, but an equal number were less so. Ylppö et al. remark that "the favourable effect of the hospitalisation in the social behaviour of many children deserves special attention".

Prevention of Psychological Trauma

AVOIDANCE OF UNNECESSARY ADMISSIONS

The more efficient an outpatient department the fewer children will be admitted to the wards from it. There are few special investigations which cannot be done in the outpatient department, though some children may have to be admitted simply because they live a long way from the hospital. In my experience it is only rarely necessary to admit a child "for observation" or "for assessment"—e.g., for behaviour problems, mental deficiency, and cerebral palsy.

Children are still admitted to hospital, especially long-stay hospitals, because of primary tuberculosis. This is occasionally necessary for social reasons, but there is no special treatment which is given in hospital for these children which cannot be given at home.

One feels that fewer children should be admitted to hospitals for infectious diseases. Except when there are difficult social circumstances, the great majority of cases of uncomplicated measles and scarlet fever should be nursed at home. If there are other children in the house they will have been exposed to the infection before the infected child was sent to hospital; so isolation will achieve little. Furthermore, it is irrational to send children with scarlet fever to an infectious-diseases

hospital while other children with streptococcal tonsillitis are nursed perfectly well at home.

More effective use of the public-health services, including especially health visitors and home helps, can do much to prevent unnecessary admission to hospital—at enormous saving of expenditure, apart from the advantage to the child. Immunisation against infectious diseases, such as whooping-cough and poliomyelitis, can be expected to do much to reduce hospital admission. They may also be reduced by home-care schemes, such as that established many years ago by the Leeds Public Dispensary and Hospital, and the one developed later by St. Mary's Hospital, London.

PREPARATION FOR ADMISSION

If a child is old enough to understand, he should be told a little of what he will see in hospital—about caps and gowns, nurses and doctors, and so on. He should be warned that he may be put into a cot, even though he has long since graduated to a bed, for otherwise he may be badly offended. It would often be of value to allow the child to see the ward and meet the ward sister before his admission. Various hospitals have prepared pleasant booklets which can be shown to the child, and some of them are suitable for crayoning. They include the Hospital of the South Bay, California; the Health Centre, Vancouver; the County Hospital, Lincoln; and the Whittington Hospital. The Central Council for Health Education publishes a leaflet for the purpose. There is good scope for more really pleasant booklets on the subject.

Preparation of the child must not be prolonged or excessive; neither must it be neglected. The difficulty is in striking the happy mean, and it is very much a matter of opinion. In general, I feel, two or three days' preparation should be adequate. Too long or excessive conversation about the hospital is apt to cause anxiety in the child. It is quite wrong to go into *details* of operations, such as tonsillectomy, which are quite beyond the child's comprehension and can only lead to unpleasant fantasies and fears in an imaginative child. The emphasis should be on the pleasant side of hospital life rather than the unpleasant experiences which the child may face.

In some research projects (e.g., Albany) a social worker has visited the home on several occasions to prepare the child. This would hardly be practicable in ordinary hospital practice.

A leaflet for the parents can be of some value. It should describe visiting-times, the purposes of the visit, the importance of not making promises (about the child's return home) which will not be fulfilled, the provision of suitable toys, and the sending of letters by parents and friends.

ADMISSION PROCEDURE

It should never be necessary to drag a screaming child away from his mother in the casualty or outpatient department. The mother should go up to the ward with her child and see him into bed, if possible staying a short time with him until he has had a chance to see his new surroundings. Ideally a child who is well enough should be admitted not to the ward but to the ward playroom. The traditional bath on admission can sometimes be avoided. The child should take with him his favourite teddy, bit of rag, or toy. The immediate removal of his clothes may cause anxiety.

THE TYPE OF HOSPITAL

Whenever possible, a child should be admitted to a children's hospital rather than to a general hospital. This is obviously impossible if the town is not large enough to justify a separate children's hospital. The advantages of a children's hospital compared with a children's ward in a general hospital are numerous: there are fewer changes of nurses; the nurses are trained in children's work, including the psychological aspects of children's nursing; there will probably be better toys and play equipment; occupational therapists and members of all the ancillary services, such as physiotherapy and speech therapy, are more accustomed to work with children; and the laboratories are likely to use micromethods instead of those requiring more venepunctures.

For these and many other reasons there is everything to be said for a separate children's hospital—preferably very near an adult hospital, so that there is constant contact between the two hospitals. I agree entirely with the report of the Royal College of Physicians (1957) which said: "There is no doubt that special children's hospitals offer the best service for children, because the staff, at all levels, and in all departments, is attuned to the special needs of the sick child."

Except where it is really necessary, children should not be admitted to infectious-diseases hospitals. Each general hospital and each children's hospital should have its own isolation unit, where cases of infectious disease are nursed and where children requiring specialised treatment (e.g., those with gastroenteritis) can be treated by pædiatricians with experience of these problems. The College of Physicians report stated that "in every pædiatric unit isolation accommodation is essential, and as large units are developed a block should be included for infectious fever". We all know, furthermore, that a high proportion of children admitted to infectious-diseases hospitals are not suffering from infectious diseases at all. It is hard to understand why so many cases of pneumonia or suspected meningitis are sent to them.

Children should certainly not be admitted to adult wards. This is particularly deprecated in the College of Physicians report. Children in adult wards see and hear things which they should not see and which cause psychological trauma; they are treated in an undesirable way by adult patients and by the nurses; they are unlikely to have an adequate supply of toys, and to be given occupational therapy and teaching which they would receive in a children's ward; and they lack the companionship of other children.

If there is not a separate children's hospital, there should be a children's block in the general hospital. There is no need to separate medical from surgical cases. There is much to be said for both being under the general care of the pædiatrician—the surgeon, of course, being responsible for the surgical management. The difficulty lies in the surgical specialties; for instance, an ophthalmic surgeon or a chest surgeon prefers to have children in a ward where he has specially trained nurses. Unfortunately this often means that the child must be in a ward with adults, which is thoroughly undesirable. In building a new hospital, thoughtful planning could get over this difficulty: for instance, if a block of wards were built on the pattern of a cross, of which each arm was devoted to one specialty, the inner end of each arm could be devoted to children, so that a children's section could be established.

In general, children should not be admitted to single cubicles, except where there is a special reason for it—e.g., infectious disease—and even then there may be several children with the same infection who can be together in a small ward. Cubicles are desirable for babies but undesirable for older children unless the circumstances are exceptional. Children are far happier in a ward with other children than in a room of their own in a private block or in a nursing-home. (On seeing a depressed-looking boy in a single room in a private block, a consultant remarked to his resident: "Poor little rich boy.") The aim of cubicles is the prevention of cross-infection. We all know how regrettably they fail to achieve this. Apart from this, one has to balance the risk of cross-infection against the psychological trauma of solitary confinement. If a cubicle has to be used, the glass should reach down to the child's eye level, so that he can see others from where he lies in bed.

If a child has to be admitted to a hospital a second time, he should be admitted to the same hospital and to the same ward as before. A combined medical and surgical ward helps to make this possible. It helps the child, because he knows the sister in charge.

Transfers of children to other hospitals for specialised treatment are difficult to avoid but should be kept to a minimum. The difficulty lies in the expense of providing specialised equipment in more than one hospital in a group. In a city, however, much can be done by concentrating children in one children's hospital, rather than in several scattered units none of which are large enough to justify the provision of equipment and personnel for the various subspecialties.

Each children's unit should have accommodation for mothers, as advocated by the late Sir James Spence, so that a mother can be admitted with her child if she is particularly disturbed about being separated from him, or if he is likely to find the separation difficult, or if a child who has been admitted is not settling down satisfactorily. This arrangement presents great psychological advantages to mother and child. The mother nurses her own child under supervision and is helped by the confidence so acquired. The arrangement is especially useful in the care of difficult feeding problems, in which a mother has lost confidence in her ability to feed her baby.

When I told a mother that I wanted to admit her 3-year-old child, she said that she would give anything and do anything, such as scrubbing the ward floor, to be allowed to come in with her child. I told her that she could have a room with her child without having to scrub the floor, but that she would help to nurse the girl. Her gratitude was immense.

Unfortunately, because of domestic difficulties, relatively few mothers can come into hospital with their child. Moreover, when pressing them to come, one must remember the possible psychological trauma and jealousy in the children left behind, and balance it against the psychological trauma in the sick child if the mother does not come in with him. Those left behind must not be forgotten.

If a mother cannot stay the night, she can often come in for the whole day to look after and be with her child. The provision of home helps should make this more easy.

DAILY VISITING

All children's units should allow daily visiting. There are still hospitals, particularly long-stay ones, which oppose it, mostly on the grounds that separation from the parents does no harm, and that children settle down better if not visited. Their attitude arises largely from failure to understand the psychological reactions of children. I have seen severe psychological problems lasting for years in children who have been in such a long-stay hospital where visiting was not allowed. In each case the children, who were inpatients at the age of 3 to 4, bore considerable resentment against their parents, reminding them for several years that they "deserted" them when they were ill. I heard of a 4-year-old child who was an inpatient for ten months in an infectious-diseases hospital without being allowed to see his parents. By the time he did see them he must have completely forgotten them.

Some infectious-diseases hospitals have rigid rules about visiting. Parents may be allowed to look at a child through a glass partition. This must be very tantalising for a small child, who cannot understand why the parents do not enter the room. I can see no reason why parents should not be allowed into the room of a child with measles, and the same applies to most of the other common infectious diseases.

The arguments usually raised against daily visiting are the risk of cross-infection, the difficulty of one child not having a visitor when others do, and the idea that the child is upset by visits and is better without them. As for the first, several studies have shown that daily visiting does not increase cross-infection. The difficulty of one child not having a visitor when others do is a real one, and difficult to answer; but I do not agree with the idea that there should be equal misery for all. Tactful handling by the nurses, with the traditional kindness of other visitors who see a child looking lonely, will help such children. As for the third objection, it is true that most young children cry when their parents depart, but this lasts only a short time, and it is far better that children should be disturbed for a few minutes on the departure of their parents, with the certain knowledge (which they very soon acquire, even when very young) that the parents will come every day, than that they should become more and more convinced that they have been deserted, or are being punished.

In leaflets or booklets given to them by the hospital, parents may be told so much about the importance of daily visiting that they feel guilty when they cannot visit every day. In a previous paper (Illingworth and Holt 1955) we pointed out that visits are often costly and take much time, and this must apply more in long-stay hospitals. Parents can be helped to pay their fares by the almoner's department, but there is the real problem of the children at home. Home helps, supplied by the health authority, may be part of the solution. Once more one has to strike a balance between the psychological trauma and jealousy in the normal siblings at home and the needs of the sick child in hospital.

The visits should preferably be in the evening, near the child's bedtime, and should not be too short, but there should be considerable latitude for the sake of those whose work or domestic situation makes this difficult.

For children spending a very long time in hospital occasional weekends at home are of considerable value.

HOSPITAL DESIGN

We have much to learn from other countries—in particular, I would say, from Finland—about the design of children's hospitals. The provision of a veranda for each bed, as at The Hospital for Sick Children, Great

Ormond Street, London, is desirable. Ideally, each ward would have a playroom, or a combined eating-room and playroom. It is necessary to give thought to making the outpatient, casualty, and X-ray departments attractive and colourful. The latter department may be frightening for a child: something can be done by pictures and toys to make it more attractive. Large waiting-halls should be a thing of the past. A small attractively equipped and decorated waiting-room in between each two consulting-rooms is much better. Pleasant canteen facilities should be provided. When parents who have attended a morning outpatient clinic with a child are asked to stay for another clinic in the afternoon, meals should be provided.

INSTRUCTION OF NURSES AND STUDENTS

On the psychological aspects of child care nurses should get instruction from the pædiatrician and not from a sister-tutor who is divorced from practical ward work. They should learn about the psychological development and management of normal children and the psychological needs of the sick child.

Nurses should be told about their role as temporary mother-substitutes and be encouraged to pick children up, instead of turning a deaf ear to their crying. They must be told that the small child who stands at the end of his bed with his nappie half-down his legs and with a running nose, screaming all day long, is not a naughty spoilt child but a normal one; and that the quiet subdued 2-year-old who lies in bed all day without a murmur is not being "good" (when he is normally a boisterous, noisy, happy child) but is showing an abnormal and undesirable reaction as a result of emotional deprivation. They must be told to avoid such errors as forcing food, taking the temperature by the rectal route, giving an enema before an operation, making a fuss about an "accident", or giving children unsuitable clothes, such as a girl's nightie for a 10-year-old boy, or a pyjama jacket without pyjama trousers. They must be told about the importance of attending to children's toilet needs (just as one would at home), of keeping them occupied, of arranging them in suitable age-groups (particularly the older children), and of seeing that when they have to be readmitted they come back to the same ward as before. They must be told about the importance of never lying to a child (especially in saying that a painful procedure, such as an injection, will not hurt), and of telling him what is going to happen—not long before, but just before it is done. In fact, nurses have to be instructed in all the points mentioned in this paper.

KEEPING CHILDREN OCCUPIED

Nurses should be instructed in the selection of toys and books for different age-groups. At the Children's Hospital, Sheffield, they all receive a lecture and practical demonstration on the subject. They should be told about the importance of seeing that the children have plenty to do. They should be brought to realise that a well-managed children's ward should be thoroughly untidy.

I have been impressed in travels abroad by the lack of provision of toys for children in hospitals. In this country the provision of toys for the younger children is apt to receive insufficient attention.

Every children's ward has its 240-piece jigsaws and books about naughty girls at school who turned out well, but one rarely sees wards equipped with 10-piece or 20-piece jigsaws, with dolly-dressing equipment, or with books suitable for the child aged 5 to 6 who has lately learnt to read. Furthermore, a nurse who has been properly instructed should be able to advise parents about toys and books suitable for children. Parents are apt to bring mechanised toys, often quite expensive, which are of little value to a child, because they give no scope to his imagination. I have dealt with the question of toys for different age-groups elsewhere (Illingworth 1957).

It would be a good thing to have one person, perhaps someone in the department of occupational therapy, who would go round every ward every day with a trolley-load of toys. She would take responsibility for them and try to reduce the prevalent high loss-rate. Another, perhaps a nursery-school teacher, might be responsible for the children's books, advising on their purchase and taking them round to the wards. Voluntary workers could well take up this pleasant occupation.

For children who are sufficiently well, out-of-doors equipment—e.g., sandpit, climbing-frame, and wheeled vehicles—could be provided. A roof garden might be used for the purpose.

A department of occupational therapy, in which nurses receive instruction as part of their training, is an essential part of a children's hospital. The occupational therapist must avoid the temptation of concentrating on the older children, who are better able to look after themselves than are the younger ones. The occupational therapist should be on call for any newly admitted child or any child who is unhappy. New admissions should be seen by the occupational therapist as soon as possible after coming to the ward—not next day.

Teachers are now provided by the education authority in most children's units in this country. These teachers greatly help children in hospital by keeping them occupied and preventing psychological trauma as a result of backwardness on return to school. They teach short-stay children as well as long-stay ones.

I feel that a doctor should be responsible for supervising the arrangements and the supply of suitable and adequate toys for the children. The matter is of considerable psychological importance; and, if he does not take an interest in the matter, it may well be that no one else does.

A television set in each ward is appreciated.

PROVISION OF SUITABLE FOOD

A resident doctor should be expected to keep an eye on the food supplied to children. Imagination is required to make food attractive in appearance and palatable for children. Too often the child is expected to enjoy a nondescript mush, or a daily diet of minced meat and mashed potatoes, followed by milk pudding. Among other items a liberal supply of fresh fruit and ice-cream is likely to be welcomed, and chips are usually popular.

UNPLEASANT PROCEDURES

By a little thought much can be done to minimise unpleasant procedures. For instance, when one is about to give an injection or to take blood for a laboratory investigation, the preparations for the prick should be concealed from the child. One sees a child wincing at the sight of the needle and syringe being made ready. By judiciously standing with one's back to the child and between the child and the syringe, he can be prevented from seeing the preparations. Much can be done by getting the equipment ready in another room before approaching him.

There is a tendency to carry out many investigations one after the other, all requiring pricks, instead of doing a batch at one time from one specimen. A little forethought will prevent such a succession of investigations and avoid those which will throw no light on the problem.

In the same way a succession of anæsthetics can often be avoided. Venepunctures for laboratory investigations may be done when the child is under an anæsthetic for another purpose.

The era of painful daily dressings has now largely gone, and wounds are given a chance to heal without being damaged by daily interference. Few unpleasant experiences in hospital can have caused so much psychological trauma as they did. There is still room for thought, however, about the avoidance of such painful procedures, or about the use of a tranquillising drug when a painful procedure is necessary in an anxious child.

Now that depot penicillins and more satisfactory oral preparations are available, repeated injections of aqueous penicillin should be a thing of the past, except in certain rare special circumstances. The increasing use of micro-methods is reducing the number of venepunctures in children's hospitals, but some hospitals have a long way to go in their use.

The use of premedication before anæsthesia is a matter for further investigation.

There are advantages and disadvantages which cannot be discussed here. There is much truth in the comment by Jackson et al. (1952) that "our experience has shown that the child best able to meet the hospital-anæsthesia-surgery situation is the child who is able to trust the physician and nurses to treat him fairly", and "the child who is anxious and suspicious is the child who will cry and resist the most". Nevertheless, one has to try to reduce psychological trauma in children who are insecure as a result of unsatisfactory home relationships or who are of a nervous type, and for them premedication may be advisable. It may help to allow a child to take his favourite toy to the anæsthetic room. There is a great need for careful experiments of the "blind" variety to determine the best method of preparing children for anæsthesia.

Trauma from mechanical procedures can be reduced by the appointment of doctors for resident appointments who have had previous appointments in adult wards.

SIGHTS AND SOUNDS

Children in a ward should not be allowed to see another child suffering; to see death; to see unpleasant procedures being applied to another child; or to see a child bringing up blood after a tonsil operation. The proper use of a treatment room, and the use of a cubicle for a dangerously ill child, will prevent much of this.

Great care should be taken to avoid talking in front of children about their ailments. It is very easy to err in this direction during a ward round. It is a mistake to think that the use of long words provides safety in this direction. Children hear and misinterpret what they hear. I saw a boy who had been seriously disturbed because he had been told (in an adult ward) that the patient in the next bed to his was not going to get better. An inexperienced nurse could easily say this without thought.

One must remember the foolish conversation in a ward between one child and another. Hence all the children should be prevented from seeing and hearing things which they should not hear, because otherwise details of unpleasant happenings or sayings will soon be embroidered and exaggerated, and so lead to anxiety.

CONFINEMENT TO BED

It is difficult to determine why children are kept in bed so long in many illnesses. The most likely explanation in many cases lies in the fact that no-one has thought of getting them up. The number of medical conditions demanding strict confinement to bed is very small indeed.

A high proportion of children in the medical wards have been admitted because of respiratory infections. There is no justification for keeping them in bed after their temperature has become normal or nearly so. Gibson (1956) conducted an interesting study of the effect of rest in bed on children with these infections at home. Those who were up and about their room, in spite of slight pyrexia, fared quite as well as those who stayed in bed. A child who is feeling poorly because of an infection wants to be in bed and should stay there, whereas a child who is anxious to get up should usually be allowed to do so. A child is far happier if allowed to sit in a chair near a fire, playing games with other children, and having his meals out of bed, than if he is confined to bed all day. In any case an active child who is feeling well is likely to exert himself much less if allowed to sit at a table in the ward than if he is restlessly jumping about in the bed. Children, like adults, much prefer to go to a lavatory than to be compelled to use a bedpan, and few medical conditions necessitate the deprivation of the right to go to the lavatory. The children's doctor should pay special attention to the question of stay in bed.

ROLE OF THE FAMILY DOCTOR

In many practices family doctors visit their patients in hospital. Children who know the doctor are helped in this way. The doctor, furthermore, helps the parents by reporting progress and confirming what they have been told themselves.

THE ROLE OF THE PADRE

The hospital padre can help to reduce psychological trauma in children by talking to them and by holding ward services. There should be contact between the padre and the parents of the children.

EARLY DISCHARGE

With care and thought the duration of stay in hospital can be greatly reduced below its present figures, particularly if proper use is made of the public-health services, including the health visitor and the district nurse. In my opinion a constant conscious effort should be made to reduce hospital stay. At the Children's Hospital, Sheffield, when a child is admitted for operation on an inguinal hernia, he is admitted in the morning, operated on in the afternoon, and discharged home next day.

The problem of carriers of pathogenic intestinal organisms, such as those of Sonne dysentery and the salmonella group, should be considered by the public-health authorities. The problem involves the long stay in hospital of otherwise perfectly well children.

DISCUSSION WITH THE PARENTS ON DISCHARGE OF THE CHILD

All parents should be seen by the doctor during the child's stay in hospital and on his discharge. Not only must they be told about his illness but also they need to be advised about possible difficulties in behaviour. They must be warned not to spoil him because he has recovered from an illness; he must be treated as a normal child and subjected to the same discipline as anyone else. Anxiety must not be shown if he wets his bed. They must be told that, if any regression symptoms or symptoms of insecurity appear—clinging, temper tantrums, fears or sleep disturbances—they should be tackled by treating the basic cause, the feeling of insecurity. Every effort should be made to give the child a feeling of importance and of being wanted and loved, reprimands being absolutely avoided if possible.

The doctor should always make sure that the parents have had a full opportunity to ask any questions they wish.

AVOIDANCE OF PARENTAL TRAUMA

This indirectly benefits the child. The role of accommodation for the mother in a room with her child, arrangements for the mother to stay during the day, and of daily visiting have already been mentioned. The admission procedure is also important: the avoidance of trauma to child and mother by separating a crying child from his mother in the outpatient department has been emphasised.

Mothers should not be expected to witness unpleasant procedures. I heard of a mother being asked to hold her child down while painful daily dressings were made. It is doubtful whether a mother should see her child coming out of an anæsthetic, particularly after tonsillectomy, though it has psychological advantages to the child.

Good liaison between parents, nurses, and doctors achieves a great deal in the reduction of trauma. Parents should always feel that they can obtain all the information they want, and that they know what is being done and going to be done. Above all things, nurses and students must be taught never to tell a mother that she is being "fussy" or "overanxious". A good mother *is* anxious about her child.

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GOITRE AND ARTERIOSCLEROSIS

UNTO UOTILA
M.D.
PROFESSOR OF FORENSIC MEDICINE

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OUR interest in the ætiology and pathogenesis of arteriosclerosis and atherosclerosis was aroused by our observation at forensic necropsies that persons who had died from coronary sclerosis often had a goitre. We have had the principal organs weighed over a period of several years and have been able to demonstrate that goitre is in fact significantly commoner in people who have died of coronary sclerosis than in those who have died from other causes.

Much has been published on the connection between the thyroid gland (especially in hypothyroidism) and experimental atherosclerosis (Andrews 1953, Katz and Stamler 1953). It shows that in hypothyroidism there is not only hypercholesterolæmia but also a tendency to arteriosclerosis, and that thyroid hormone can decrease both exogenic alimentary cholesterolæmia and atherosclerosis. There is also some clinical and postmortem evidence of a tendency to atherosclerosis in myxœdema (Fishberg 1924, Rosenthal 1934, Bruger and Rosenkrantz 1942, Means 1948, Kountz 1950), though some workers, such as Andrews (1953), have thought this inconclusive.

The relationship of goitre and coronary sclerosis has been discussed in listing the indications for goitre resection in the presence of coronary-artery disease. But we have found no reference in the literature to the possible ætiological relationship of the two conditions.

TABLE I—WEIGHT OF ORGANS

—	Coronary-sclerosis group	Controls	P
Height (cm.):			
Males	168·0 ± 0·49	169·6 ± 0·48	>0·1
Females	156·2 ± 0·96	158·5 ± 0·71	0·05<P<0·1
Body-weight (kg.):			
Males	68·8 ± 0·93	65·6 ± 0·81	0·02
Females	64·2 ± 1·97	63·4 ± 2·02	>0·6
Pituitary gland (g.):			
Males	0·45	0·44	
Females	0·53	0·54	
Thyroid gland (g.):			
Males	50·3 ± 2·1	37·8 ± 1·3	0·001
Females	46·6 ± 3·5	35·0 ± 2·7	0·01
Adrenal glands (g.):			
Males	11·45 ± 0·20	12·0 ± 0·26	0·05<P<0·1
Females	10·05 ± 0·42	10·57 ± 0·39	>0·2
Gonads (g.):			
Males	34	35	
Females	5·13	5·98	
Pancreas (g.):			
Males	92	89	
Females	72	71	
Heart (g.):			
Males	435 ± 6·6	395 ± 5·8	0·001
Females	421 ± 11·4	360 ± 10·8	0·001
Brain (g.):			
Males	1503 ± 8·7	1455 ± 9·1	0·001
Females	1286 ± 13·7	1286 ± 13·5	>0·5
Liver (g.):			
Males	1831 ± 22·8	1685 ± 25·0	0·001
Females	1724 ± 52·6	1508 ± 43·6	0·01
Spleen (g.):			
Males	140·3 ± 3·9	136·0 ± 8·7	>0·4
Females	139·4 ± 7·8	120·9 ± 7·9	>0·4
Kidney (right) (g.):			
Males	161·6 ± 2·19	150·1 ± 2·26	0·001
Females	128·1 ± 2·69	112·7 ± 3·39	0·01
Prostate (g.):	21	26	

Material and Methods

250 deaths from coronary sclerosis and its consequences were selected from the material of the Institute of Forensic Medicine at Helsinki, 200 of them in men and 50 in women. In another 200 men and 50 women selected as controls the causes of death were either natural or violent —the only principle observed in the selection being to obtain a case as free as possible from coronary sclerosis. This involved the examination of thousands of cases. Each age-group of 5–10 years included equal numbers of coronary-sclerosis deaths and controls.

In each case all the principal organs were weighed after careful preparation. A thyroid gland weighing more than 40 g. was regarded as a goitre because this seems to be the natural limit in Finland where goitre is of medium endemicity (Wahlberg 1938, Uotila 1942).

Results

The height of the patients in the coronary-sclerosis group did not differ statistically from that of the controls, but on the average they were somewhat shorter (table I). The coronary-sclerosis males tended to be heavier than their controls; but no significant difference was found in body-weight in the women. The weight of the men with coronary sclerosis and goitre, however, was significantly heavier than the men with coronary sclerosis but no goitre ($P=0·002$).

TABLE II—FREQUENCIES OF SOME CHANGES

—	Coronary-sclerosis group (%)	Controls (%)	P
Goitre (thyroid more than 40 g.):			
Males	58	28	0·0005
Females	50	22	0·0005 0·0005
Sclerosis of aorta:			
Males	84	45	0·001
Females	98	60	0·001 0·001
Cerebral sclerosis:			
Males	34	22	0·025
Females	70	48	>0·1 0·025
Nephrosclerosis:			
Males	0	4	0·025
Females	32	12	0·025 0·005
Cholecystopathy:			
Males	7	4	>0·5
Females	26	20	>0·4 0·4

The weights of the pituitary gland, the adrenal glands, the gonads, the pancreas, and the spleen of the coronary-sclerosis group did not differ significantly from those of the controls (table I). The thyroid gland, on the other hand, weighed more in the coronary-sclerosis group. The incidence of goitre (i.e., thyroid gland weighing more than 40 g.) was 58% for coronary-sclerosis males against 28% for male controls, and 50% for coronary-sclerosis females against 22% for female controls. The difference was statistically very highly significant (table II).

As the coronary-sclerosis group and the controls were matched for age, there was no difference in their average ages. The average age both of the coronary-sclerosis males with goitre and of the coronary-sclerosis males without goitre was 55. The χ^2 test of the cumulative percentage age-distribution showed a difference for the men in the over-65 group ($P=0{\cdot}02$). In the women, the average age of the goitrous coronary-sclerosis case was 65 and of the non-goitrous coronary-sclerosis case 68, the difference of age-distribution in the χ^2 test being statistically significant ($P=0{\cdot}001$).

That the heart weighed more in the coronary-sclerosis group than in the controls was to be expected, but it is significant that it weighed more in the goitrous coronary-sclerosis cases than in the non-goitrous ($P=0{\cdot}002$).

The liver and the kidneys of the coronary-sclerosis group were heavier than those of the controls, but there was no correlation between their weight and the presence or absence of goitre. Finally, mention must be made of the higher incidence of general arteriosclerosis in the coronary-sclerosis group compared with the controls (table II).

Discussion

It is easy to understand that coronary sclerotics are somewhat shorter and heavier than other people, because most patients with coronary sclerosis belong to Kretschmer's pyknic type. The fact that coronary sclerotics with goitre weigh more than those without goitre suggests that the thyroid gland may be responsible. The finding that in coronary sclerotics the heart is bigger in those with goitre than in those without goitre points in the same direction. If the thyroid is involved in the ætiology of coronary sclerosis, is this through toxicity of the thyroid secretion or hypofunction of the gland, or some factor not yet known?

The heavier liver and kidneys of coronary sclerotics are usually explained by stasis due to heart-failure, but this explanation seems somewhat lame when one finds no corresponding increase in the weight of the pancreas and the spleen.

As coronary sclerosis and arteriosclerosis are largely concomitant, it is justifiable to identify them to some extent.

We considered the possibility that the high incidence of an abnormally large thyroid gland (i.e., goitre) could result from stasis; but we concluded that this is extremely unlikely, since the weight and incidence figures of goitre and coronary sclerosis bear too significant an interrelationship. The age-distribution of goitrous and of non-goitrous cases of coronary sclerosis supports this conclusion. A more specific relationship is also indicated by the influence of goitre on the weights of the body and of the heart in cases of coronary sclerosis. Finally, our view is supported by the fact that the iodine content of food is smaller (Vilkki 1956, Roine et al. 1958) but coronary sclerosis more common (Keys et al. 1958) in eastern Finland, where endemic goitre is more prevalent (Wahlberg 1938) than in western Finland.

The close association between goitre and arteriosclerosis suggests a causal relationship. It might be thought that coronary sclerosis, through the stress it originates, causes involution of the thyroid gland and produces colloid goitre (Selye 1950, Isotalo); but this explanation seems rather far-fetched, especially in the light of the facts about goitre in Finland which we have just mentioned.

The association between coronary sclerosis and goitre can, we think, be explained differently. The Finnish endemic goitre is hypoepithelial—i.e., in 60% of cases its content of epithelium is less than 25%, owing to abundant colloid and fibrosis (Saarenmaa 1956). Furthermore, it is usually nodular. In the Joensuu district in eastern Finland the level of protein-bound iodine in the serum was 2–3 μg. per 100 ml. in 6·1% of those with goitre and 2–4 μg. in 21·3% (Jussila). The corresponding figures for Helsinki are 5·3 and 18·1% respectively (Lamberg et al. 1956). Also in view of the fact that goitre (i.e., thyroid gland weighing more than 40 g.) occurs in 45% of all the necropsy material of the Institute of Forensic Medicine, Helsinki, it is probable that endemic goitre in Finland has some hypothyroid features.

In hypothyroidism an excessive amount of thyrotrophic hormone is secreted. In addition to its stimulating effect on the thyroid gland, thyrotrophin affects connective tissue directly by increasing its mucopolysaccharide content (Asboe-Hansen and Iversen 1951). It also prevents the maturation of granulation tissue whereas growth hormone promotes it (Saikku 1956). We think it likely that the acknowledged tendency of hypothyroid patients to arteriosclerosis is attributable not only to a raised serum-cholesterol level but also to the overproduction of thyrotrophin.

It is generally believed that endemic goitre is caused by hypertrophy and involution; this means, at some stage or other, overproduction of thyrotrophin. According to Lamberg et al. persons with goitre in the Aaland Islands have a greater amount of pretibial acid mucopolysaccharides than do healthy persons, and this might be attributable to overproduction of thyrotrophin.

Summary

Postmortem findings in 250 persons who died of coronary sclerosis are compared with the findings in 250 persons who died from other causes.

Goitre was commoner, and the average weight of the thyroid was higher, in those with coronary sclerosis. Among the coronary-sclerosis cases, those with goitre had a tendency to lower average age at death and a higher average heart-weight.

Comparison of body-build showed that the 250 persons with coronary sclerosis were slightly shorter and heavier than the controls. Among those with coronary sclerosis those with goitre were heavier than those without goitre.

These findings are correlated with observations made in Finland on the nature and distribution of endemic goitre, the iodine content of the food, and the distribution of coronary sclerosis.

It is concluded that goitre and arteriosclerosis may have a pathogenetic relationship, possibly through hypothyroidism and the overproduction of thyroid-stimulating hormone by the pituitary gland.

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DIET AND CARDIOVASCULAR DISEASE IN FINLAND

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IN the epidemiology of cardiovascular disease Finland is of special interest (Keys et al. 1958) because the mortality of men from coronary disease is higher there than in any other European country, and mortality and disability statistics suggest that cardiovascular disease is more prevalent in the eastern than in the western part of Finland. Keys et al. (1958) have also shown that serum-cholesterol levels in Finland are unusually high, particularly in the eastern part. Since there is much evidence that diet plays a part in the ætiology of coronary disease, it is important to get reliable information about the diets in these areas and, in particular, to know if dietary differences can be related to different incidences of coronary disease. Dietary surveys were therefore made in selected areas of West and East Finland in connection with the medical studies of Keys et al. (1958).

TABLE I—ANALYSIS OF FAMILIES INCLUDED IN FINNISH DIETARY SURVEY

—	1956		1957	
	East	West	East	West
Number of families	42	42	20	20
Mean number of persons in each family	4·3	4·4	3·9	4·1
Mean age of adult men (yr.)	40·4	39·7	45·3	38·9
Mean age of adult women (yr.)	41·0	38·8	43·0	40·8
Mean age of those younger than 20 (yr.)	8·1	8·0	9·7	8·1

The greater part of the dietary survey was made in June, 1956, but to get some idea of the seasonal variations half the families were studied again in January, 1957. Forty-two families from the West and the East, mainly of farmers of fair financial standing, were included in the study. Almost all the men in the families did heavy physical work (grades 3 and 4). The number of people in the families was 358 (0·7–0·8% of the population of the communities).

TABLE II—SERUM-CHOLESTEROL LEVELS (MEAN ± STANDARD ERROR) OF MEN IN DIETARY SURVEY COMPARED WITH THOSE IN ENTIRE MATERIAL (KEYS ET AL. 1958)
(All samples were taken in September, 1957)

Group	Age (yr.)			
	20–29	30–39	40–49	50–59
East:				
Men in dietary survey	226 ± 23·9 (4)	252 ± 16·7 (12)	247 ± 16·3 (13)	250 ± 21·2 (11)
Men in work grades 3 and 4	215 ± 6·9 (40)	263 ± 8·0 (57)	251 ± 5·9 (57)	252 ± 7·6 (31)
West				
Men in dietary survey	220 ± 24·3 (4)	222 ± 11·2 (17)	248 ± 14·8 (13)	279 ± 19·3 (7)
Men in work grades 3 and 4	204 ± 7·1 (50)	223 ± 5·2 (52)	239 ± 7·4 (48)	248 ± 7·5 (30)

Numerals in parentheses denote number of persons.

The groups of families in each area were matched as closely as possible. A comparison of the groups is presented in table I.

An attempt was also made to select the families in the dietary survey to represent the same populations as in the serum-cholesterol study (Keys et al. 1958). The extent to which this was achieved may be judged with the aid of the serum-cholesterol levels; a comparison of the men in the dietary survey with those in the larger group is

TABLE III—AMOUNTS OF MAJOR FOODSTUFFS CONSUMED IN WEST AND EAST FINLAND
(g. per caput per diem)

Foodstuff	Summer 1956		Winter 1957	
	West	East	West	East
Bread:				
Soft	199	267	204	269
Dry	41	26	29	23
Flour	55	47	51	56
Potatoes	224	175	224	220
Other vegetables	43	13	83	28
Fruits and berries	41	28	71	45
Margarine	10	6	13	7
Vegetable oil	0	0·2	0	0·4
Sugar	66	57	52	65
Milk:				
Whole	612	670	562	677
Skimmed	144	274	90	138
Butter	37	49	31	45
Cheese	14	12	20	3
Meat:				
Beef	14	11	21	19
Pork	14	11	22	25
Other	5	8	6	29
Sausage	30	21	30	13
Fish	25	50	13	20
Eggs	23	10	21	4

TABLE IV—AMOUNTS OF PROTEINS, FATS, CARBOHYDRATES, AND CALORIES IN DIETS OF WEST AND EAST FINLAND
(Per caput per diem)

—	Summer 1956			Winter 1957		
	West	East	P	West	East	P
Proteins (g.)	78·6	86·9	0·05	79·1	82·9	>0·25
Fats (g.)	99·3	102·7	>0·25	98·9	105·0	>0·25
Carbohydrates (g.)	357	348	>0·25	346	376	>0·25
Total energy (kcal.)	2598	2636	>0·25	2549	2732	0·25
Energy from proteins (%)	12·1	13·2	..	12·4	12·1	..
Energy from fats (%)	34·4	35·0	..	34·9	34·6	..
Energy from carbohydrates (%)	53·5	51·8	..	52·7	53·3	..

presented in table II, which shows that the serum-cholesterol levels of the men in the dietary survey do not differ significantly from those of the men in the larger groups.

The distribution of food items within each family was not studied. The men's share of the food consumed was naturally more than the average for each member of the family, and there may have been some selection of food items within each family. Nevertheless the qualitative character of the diet of a family probably is a satisfactory indicator of the diet of the men.

The food consumption was determined by weighing—i.e., special investigators weighed during seven days all the items used in the preparation of foods, during meals, and between meals, as well as refuse and table waste.

TABLE V—LIPIDS IN DIETS OF WEST AND EAST FINLAND
(Per caput per diem)

—	Summer 1956			Winter 1957		
	West	East	P	West	East	P
Animal fats (g.)	83·3	91·2	0·1	81·5	90·5	0·25
Vegetable fats (g.)	16·0	11·5	0·001	17·4	14·5	0·25
Fatty acids (g.):						
Saturated	53·0	56·5	0·25	52·3	56·5	>0·25
Mono-enes	33·6	33·9	>0·25	33·7	35·5	>0·25
Linoleic	6·7	6·3	0·25	6·8	6·8	..
Other poly-enes	1·2	0·9	>0·25	1·3	1·2	>0·25
Cholesterol (mg.)	402	375	>0·25	383	363	>0·25

Accurate information about the foods actually consumed was thus obtained.

The figures of food consumption, which give an idea of the Finnish dietary in general, are shown in table III. A comparison of the figures for the West and those for the East shows, among other things, a higher consumption of bread, milk, butter, and fish in the East, and of vegetables, margarine, and eggs in the West.

The calorie values of the diets, as well as the amounts of protein, fat, carbohydrate, calcium, iron, vitamin A, aneurine, riboflavine, nicotinamide, and ascorbic acid, were calculated according to Finnish food consumption tables (Turpeinen and Roine 1952). For iodine recent analytical values of foodstuffs in West and East Finland were available (Vilkki 1956). In the calculation of fatty acids of butter fat Finnish values of Peltola (1944) were used. Fatty-acid figures for most typical margarines used in the country were obtained from analyses kindly made by the Research Division of the Miami Valley laboratories of the Procter and Gamble Company in U.S.A. Other nutrients were calculated according to estimates fixed after an extensive survey of the literature.

Table IV shows that the amounts of proteins are usually large, and there seems to be a significant difference between West and East in the summer survey. The energy values are in all cases very much alike. A high percentage of energy, about 35%, is derived from fats,

TABLE VI—AMOUNTS OF SOME AMINOACIDS, VITAMINS, AND MINERALS IN DIETS OF WEST AND EAST FINLAND
(Per caput per diem)

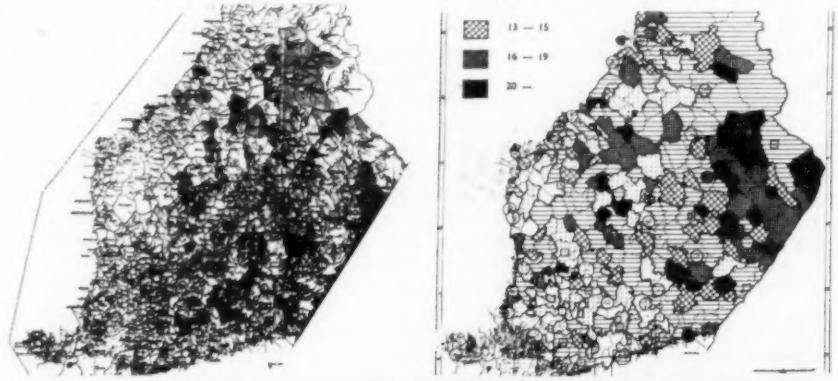
—	Summer 1956			Winter 1957		
	West	East	P	West	East	P
Cystine (g.)	0·84	0·88	>0·25	0·83	0·88	>0·25
Methionine (g.)	1·66	1·71	>0·25	1·69	1·69	..
Vitamin A (I.U.)	2840	2780	>0·25	3270	2820	0·1
Vitamin E (mg.)	9·90	9·21	0·1	11·10	9·73	0·05
Thiamine (mg.)	1·51	1·53	>0·25	1·57	1·69	>0·25
Riboflavine (mg.)	2·33	2·74	0·01	2·26	2·48	0·25
Nicotinamide (mg.)	12·1	11·5	>0·25	12·8	13·6	>0·25
Pyridoxine (mg.)	2·89	3·08	0·25	2·79	3·04	>0·25
Pantothenic acid (mg.)	6·41	6·50	>0·25	6·28	6·45	>0·25
Choline (mg.)	695	645	0·1	734	668	0·25
Ascorbic acid (mg.)	56	46	0·002	68	54	0·05
Calcium (mg.)	1199	1406	0·01	1204	1219	>0·25
Iron (mg.)	11·7	11·9	>0·25	12·4	12·5	>0·25
Iodine (μg.)	71	55	0·001	62	51	0·02

but there are practically no differences between West and East in this respect and no seasonal differences either.

Table V shows that more vegetable fats were consumed in the West than in the East; in summer the difference was highly significant. Because the vegetable fat is mainly margarine, this difference has, however, very little effect on the fatty-acid values. Saturated acids were consumed somewhat more in the East and linoleic acid and other poly-enes in the West, but differences are not significant. A noteworthy fact is the large intake of saturated acids compared with the small intake of poly-enes; in the West this ratio is 6·6, in the East 7·5. The "cholesterogenic" formula (Keys et al. 1957).

$$x = 2 \times \text{g. saturated fatty acids} - \text{g. poly-enes},$$

gives $x = 105{\cdot}8$ (1956) and $105{\cdot}0$ (1957) for the East, and $x = 98{\cdot}1$ (1956) and $96{\cdot}5$ (1957) for the West.



Geographical distributions of goitre (Kansaneläkelaitos 1956) (left) and disability due to cardiovascular disease (Wahlberg 1938) (right) in Finland (excluding Lapland). Increasing frequency is indicated by darker shade.

Hence the dietary fat may be expected to raise the serum-cholesterol level higher in the East than in the West, which is in agreement with the actual observations (Keys et al. 1958).

Figures for some aminoacids, vitamins, and minerals are given in table VI, which shows that there are no significant differences between West and East in the intakes of cystine and methionine or of most of the vitamins and minerals. Ascorbic acid, however, was obtained in significantly greater amounts in the West—and vitamin E, at least in winter, too. Riboflavine and calcium, on the other hand, were obtained in summer in greater amounts in the East.

The iodine content of the diets deserves special attention. All the iodine intakes are low, and there is a highly significant difference between West and East—findings which agree well with those of Virtanen and Virtanen (1940) and Vilkki (1956). Endemic goitre is common in Finland, particularly in the East. At least a part of this goitre is of hypothyroid type (Uotila et al. 1958). Since hypothyroidism raises the serum-cholesterol level, the low iodine content of the diet may contribute to the high serum-cholesterol values in Finland in general and in East Finland in particular. The geographical distributions of goitre and of disability due to cardiovascular disease (see figure) show in Finland a striking parallelism. The necropsy findings of Uotila et al. (1958) also support the hypothesis that lack of iodine and resulting goitre are involved in atherogenesis in Finland.

Summary

To find out if the higher incidence of cardiovascular disease in East compared with West Finland is due to dietary differences, dietary surveys were made in two selected areas of the country. The food consumption during seven days of eighty-four families in summer and forty families in winter was determined by accurate weighing, and the daily calories and nutrient intakes per caput per diem were calculated.

The average amount of fat consumed each day was 98·9 g.–105·0 g. per caput, being very similar in West and East and in summer and winter. The mean percentage of energy derived from fats was within the limits of 34·4% and 35·0%. The intake of saturated fatty acids was a little larger in the East, and that of linoleic acid and other poly-enes in the West, but these differences were not statistically significant. In both cases the intake of saturated acids compared with that of poly-enes was rather large. The ratio of saturated acids to poly-enes was higher in the East than in the West.

Considerable differences were found in the amounts of iodine, ascorbic acid, and vitamin E, the intakes of which were significantly larger in the West. The low iodine content of the diet, causing hypothyroidism and thus a rise in the serum-cholesterol level, might be partly responsible for the high serum-cholesterol levels and coronary mortality in Finland in general and in East Finland in particular.

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SERUM-CHOLESTEROL STUDIES IN FINLAND *

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MORTALITY ascribed to cardiovascular, particularly to coronary, disease is higher in Finland than in other European countries (Kannisto 1951, World Health Organisation 1953). A very high incidence of coronary disease is shown by hospital admissions in Finland (Keys 1957). Arteriosclerotic heart-disease appears to be particularly common in East Finland; regional differences within Finland are indicated both by mortality-rates (Kannisto 1947) and by the statistics of the Finnish National Pension System on disability (Kansaneläkelaitos 1956). Fig. 1 illustrates geographical differences within Finland in mortality ascribed to cardiovascular disease among men aged 30–59. Table I shows the morbidity-rates.

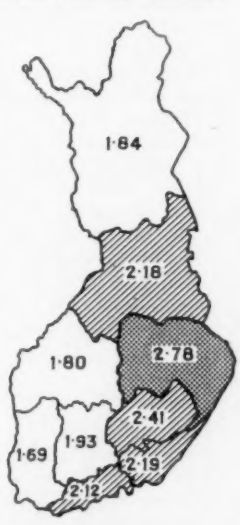

Fig. 1—Mortality ascribed to arteriosclerotic heart-disease (International List, Sixth Revision, nos. 420–422) in Finland (V. Kannisto, unpublished).

The data on Finland, in which the population is predominantly engaged in agriculture and lumbering, are surprising in view of the widespread belief that coronary disease is relatively uncommon in physically active rural populations. In Finland coronary disease is common among farmers and woodcutters. Preliminary surveys in East Finland recently disclosed that myocardial infarction accounts for about 10% or more of male patients in the medical departments of hospitals caring for the rural population. This finding and the morbidity-rates in table I stimulated a closer examination of the situation in rural East and West Finland with attention to the diet and the serum-cholesterol levels.

Investigation

In the autumn of 1956 a field study was made in West Finland and in Karelia, the areas where the records show the greatest differences in the incidence of coronary disease. In addition, in Helsinki, the fire brigade and a group of "directors" (business and professional men)

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TABLE I—FINNISH PENSION SYSTEM 1955 MORBIDITY-RATES OF MALES, PER 1000 INSURED, ON ACCOUNT OF CORONARY DISEASE, HYPERTENSION, AND OTHER HEART-DISEASES (KANSANELÄKELAITOS 1956)

District	Coronary	Hypertension	Other heart-disease
Helsinki	1·88	0·79	1·58
Kuopio	4·63	1·90	4·46
Turku	1·60	0·68	1·59

The populations considered here relate to Kuopio (East), Turku (West), and Helsinki Pension System Districts.

were studied. Altogether 976 clinically healthy men were examined, 869 being aged 20–59.

In the rural areas names were drawn from a list of men of the desired ages in or accessible to the various preselected communities where local headquarters could be established. Substantially all the men who were requested to appear for examination did so. The Helsinki groups were less representative of that area. The fire brigade was a preselected group, but self-selection within the brigade was not involved in the examinations. The "directors" responded to invitation; few so invited refused, but bias from self-selection is not excluded from this group.

Dietary surveys, which are separately reported, were made in both rural areas in June, 1956, and January, 1957 (Roine et al. 1958). The serum-cholesterol levels of the adult members (about 160) of the households involved were measured then in addition to the main survey, reported here, in the autumn of 1957. The Helsinki studies were made in October and November, 1957.

The programme included medical history, physical examination, anthropometric measurement, a 12-lead electrocardiogram, serum-cholesterol estimation, and a questionnaire about smoking. The blood-serum was analysed for total cholesterol and for cholesterol in the α and β lipoprotein fractions separated by paper electro-phoresis (Anderson and Keys 1956). In a large number of samples the cholesterol was estimated both locally in the fresh material and in duplicates, air-dried on filterpaper, and flown to Minneapolis to assure full comparability with cholesterol values from other populations studied at, or similarly controlled by, the Laboratory of Physiological Hygiene.

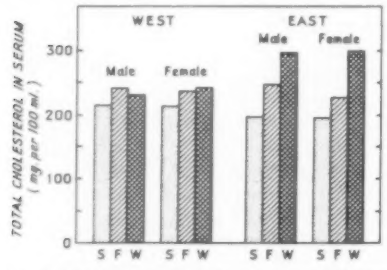

Fig. 2—Seasonal variation in mean level of total cholesterol in serum of men and women in West and East Finland. S, June, 1956; F, September, 1956; W, January, 1957.

Results

Fig. 2 shows the mean levels of total cholesterol in the serum of the persons of either sex in the dietary survey. In the West the level rose significantly from June to September, but in the East this seasonal trend was larger and continued until January, when the average was about 100 mg. per 100 ml. higher than in June. Accordingly, in comparing serum-cholesterol levels of populations, seasonal variations should be considered, at least in regions such as East Finland, where seasonal differences in climate and mode of life are extreme.

The numbers of persons of given age, sex, and occupation are too small in the dietary survey to permit detailed analysis. Table II summarises the serum-cholesterol levels of the 869 men studied in the autumn. The rural men are classified according to level of occupational physical activity. Grades 1 and 2 include sedentary and light work (clerks, teachers, car drivers, &c.), and grades 3 and 4 cover hard to very hard physical work (farmers, blacksmiths, loggers, &c.). On this scale the "directors" would be classed as grade 1 and the firemen as grade 2 or possibly between grades 2 and 3.

The most obvious trend of the serum-cholesterol levels is that with age, the values for men in the twenties in all groups being lower than at older ages, the highest averages being in the forties in three groups, in the fifties in two groups, and in the thirties in the more active men in East Finland. For the combined groups the mean serum-cholesterol levels for successive decades of age are 212, 247, 257, and 258 mg. per 100 ml. This age trend is similar to that found elsewhere in populations characterised by relatively high serum-cholesterol levels (Keys et al. 1950, Keys 1956).

TABLE II—MEAN TOTAL CHOLESTEROL (MG. PER 100 ML.) IN SERUM OF CLINICALLY HEALTHY MEN IN FINLAND CLASSIFIED BY DECADES OF AGE

Region and work grade	Age-group (yr.)			
	20–29	30–39	40–49	50–59
East, grades 1 and 2 ..	226 ± 9·1 (28)	276 ± 11·8 (24)	286 ± 11·1 (24)	258 ± 14·1 (14)
,, ,, 3 and 4 ..	215 ± 6·9 (40)	263 ± 8·0 (57)	251 ± 5·9 (57)	252 ± 7·6 (31)
West, grades 1 and 2 ..	199 ± 10·6 (17)	212 ± 12·8 (15)	260 ± 15·9 (11)	241 ± 15·5 (7)
,, ,, 3 and 4 ..	204 ± 7·1 (50)	223 ± 5·2 (52)	239 ± 7·4 (48)	248 ± 7·5 (39)
Helsinki "directors" ..	222 ± 26·8 (6)	246 ± 6·9 (42)	267 ± 10·5 (31)	250 ± 15·7 (8)
Helsinki firemen ..	212 ± 4·4 (63)	250 ± 5·4 (86)	260 ± 4·8 (92)	285 ± 7·4 (27)

Numerals in parentheses denote number of men in group.

Important regional differences were found. At all ages and work grades the averages were higher for East (Karelia) than for West Finland, and these differences were particularly notable at ages over 30.

These regional differences might be due to heredity or to environmental factors. An attempt was made to elucidate the relative influence of these two factors by grouping the Helsinki subjects according to place of birth, firemen and "directors" being pooled because there is no statistical difference between them. Three groups were made: (1) those born in Helsinki and the surrounding county (Uusimaa); (2) those born in the four counties with the lowest mortality from cardiovascular disease among men aged 30–59 (fig. 1); and (3) those born in the remaining counties or in the area ceded to the U.S.S.R. in 1940 and 1944—i.e., Karelia.

The mean serum-cholesterol levels of these groups are shown in table III. No significant differences were found.

TABLE III—MEAN TOTAL CHOLESTEROL (MG. PER 100 ML.) IN SERUM OF MEN IN HELSINKI CLASSIFIED BY AGE AND BY COUNTY OF BIRTH

County of birth	Age-group (yr.)			
	20–29	30–39	40–49	50–59
Helsinki and other Uusimaa	209 ± 6·3 (36)	253 ± 6·8 (61)	260 ± 6·5 (53)	268 ± 12·8 (15)
Turku and Pori, Vaasa, Lappi, Häme	214 ± 6·8 (14)	242 ± 9·5 (24)	258 ± 9·8 (32)	273 ± 3·5 (8)
Kuopio, Mikkeli, Kymi, Oulu, ceded area ..	213 ± 9·0 (15)	248 ± 8·5 (40)	272 ± 7·8 (40)	268 ± 19·1 (11)

Numerals in parentheses denote number of men in group.

TABLE IV—MEAN TOTAL CHOLESTEROL (MG. PER 100 ML.) IN SERUM OF 786 FIREMEN IN DIFFERENT CITIES

City	Age-group (yr.)			
	20–29	30–39	40–49	50–59
Helsinki	212 ± 4·4 (63)	250 ± 5·4 (86)	260 ± 4·8 (92)	285 ± 7·4 (27)
Malmo	189 ± 5·7 (34)	210 ± 5·7 (47)	237 ± 7·0 (38)	236 ± 6·0 (31)
Naples	132 ± 4·3 (33)	156 ± 3·3 (41)	168 ± 4·1 (71)	
Minneapolis	219 ± 8·7 (18)	231 ± 4·9 (74)	250 ± 4·0 (103)	258 ± 8·5 (28)

Numerals in parentheses denote number of men in group.

Thus it appears that the mean cholesterol differences between the population groups in East and West Finland are primarily determined by the mode of life and/or other environmental factors. There are climatic differences between East and West Finland, but these are not great; both parts are subarctic with long cold winters and short cool summers.

The mean serum-cholesterol level appears to be somewhat related to the habitual level of physical activity among men aged 40–49. At older and at younger ages there were no statistically significant differences between activity groups; in the East the men in the less active occupations tended to have higher serum-cholesterol levels, while the reverse was true in the West, and neither of these trends is significant.

More detailed analysis will be made later as regards possible interrelations of serum-cholesterol levels with blood-pressure, relative obesity, body build, and electrocardiograms. The smoking history of the men is being analysed with the help of Dr. Esko Orma and Dr. Josef Brozek. So far it appears that, in all the groups, smokers tend to have higher serum-cholesterol levels than do non-smokers, but this relationship is not enough to explain the differences between the regions. The men in West Finland smoked less than those in the other groups.

TABLE V—MEAN LEVELS OF CHOLESTEROL (MG. PER 100 ML.) IN α-LIPOPROTEIN FRACTION OF SERUM IN MEN FOR WHOM TOTAL CHOLESTEROL AVERAGES ARE GIVEN IN TABLE II

Region and work grade	Age-group (yr.)			
	20–29	30–39	40–49	50–59
East, grades 1 and 2	41·8	46·3	46·0	45·7
,, ,, 3 and 4	44·0	45·4	46·3	51·6
Helsinki "directors"	44·7	45·2	46·3	42·0
Helsinki firemen	46·2	45·3	45·9	46·8
West, grades 1 and 2	41·6	44·6	37·4	45·7
,, ,, 3 and 4	44·2	42·1	43·3	45·0

Other differences also were observed. The men in Helsinki tended to be tallest, those in East Finland shortest, and those in the West intermediate. Obesity was more common in the Helsinki groups than in the rural groups. Systolic blood-pressure tended to be highest in East Finland, lowest in Helsinki, and intermediate in West Finland.

Discussion

It is interesting to compare these findings in Finland with comparable studies in other populations. The averages at given ages are generally higher than in other populations studied by the same methods (Keys et al. 1957). Table IV compares men in the same occupation, full-time members of the city fire brigades in Helsinki, Malmö (Sweden), Naples (Italy), and Minneapolis (U.S.A.). Except at ages 20–29, where there is no significant difference between Helsinki and Minneapolis firemen, the Helsinki firemen have much higher serum-cholesterol levels than do the firemen in the other cities.

Similar differences between men of these populations appear when comparisons are made in other occupational categories (Keys et al. 1957). In general it seems that men in the populations studied in Finland have, on the average, higher total serum-cholesterol levels than do men studied elsewhere to date.

The differences in level of total cholesterol in the serum in the Finnish groups are due to cholesterol in the β-lipoprotein fraction separated by paper electrophoresis. Table V shows that the cholesterol level in the α-lipoprotein is substantially the same in all the groups; there are no statistically significant differences between any of the averages in table V.

The values for α-lipoprotein cholesterol in table V are comparable to those we have obtained in many other populations of men with both low and high serum-cholesterol levels and in dietary experiments in which the total serum-cholesterol level changed in response to alterations in the diet (Anderson et al. 1957, Keys et al. 1957). In clinically healthy men, at least, the levels of α-lipoprotein cholesterol show remarkably little variation, the mean values of groups and the means for many measurements on the same person seldom being outside the range of about 37–47 mg. per 100 ml. measured by our method.

TABLE VI—MEAN LEVELS OF α AND TOTAL CHOLESTEROL IN SERUM OF FARMERS' WIVES IN EAST AND WEST FINLAND

Group*	α-cholesterol	Total cholesterol
20 East Finland women	56·2 ± 3·5 (45·8)	237·7 ± 12·2 (257)
28 West Finland women	56·7 ± 1·6 (42·7)	227·0 ± 7·5 (231)

* Numerals in parentheses denote means for male farmers of same age in same area.

Women, however, usually have higher levels of α-lipoprotein cholesterol, though the level of total cholesterol in the serum tends to be similar to that for men of the same age in the same population. Data from East and West Finland (table VI) illustrate this point. Some farmers' wives accompanied their husbands and asked to be examined also. This was permitted for reasons of local public relations, and the serum-cholesterol levels of 48 women, aged 30–49, are summarised in table VI. The average levels of α-cholesterol in the serum in both East and West Finland are higher, and those of total cholesterol and, especially, β-lipoprotein cholesterol, tend to be lower in women than in their husbands. The mean levels of β-cholesterol in the serum of men are 29·7 and 18·0 mg. per 100 ml. higher than in the women in East and West Finland respectively.

Summary

Statistics indicate unusually high mortality-rates and morbidity-rates in Finland as a whole, and in East Finland in particular, ascribed to coronary disease.

Total cholesterol and that in the α and β lipoprotein fractions were measured in 869 clinically healthy men aged 20–59 in the city of Helsinki and in two rural regions of Finland.

The total cholesterol levels tended to be higher than those observed in populations elsewhere, and this excess was accounted for by β-lipoprotein cholesterol.

Farmers' wives resembled the men in the rural areas as regards total chloesterol but had higher levels of α-lipoprotein cholesterol.

In the age range 40–49 the men in occupations demanding heavy physical work had lower cholesterol levels than had the men in lighter work, but at other ages the cholesterol level appeared to be unrelated to habitual physical activity.

Smokers tended to have higher cholesterol levels and lower blood-pressures than had non-smokers.

At all ages and activity levels the men in East Finland tended to have higher levels of total cholesterol in their serum than had the men in West Finland, and this difference was entirely accounted for by β-lipoprotein cholesterol. However, when the men in Helsinki were classified according to region of birth, there were no significant differences, suggesting that the regional differences are not due to hereditary influences.

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ACUTE PEPTIC ULCERATION IN EMPHYSEMA

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Teare (1957) and Latts et al. (1956) found a higher prevalence of peptic ulcer in necropsies of emphysema patients than might be expected in the general population. In Teare's cases, which were all coroner's necropsies, the ratio of observed to expected ulcers or scars was 51/35·5. In the cases of Latts et al. the prevalence of ulcer was 27%, which is at least three or four times the expected figure. In contrast to Teare's cases many of these patients died from emphysema, and it can be assumed that many of them had been severely anoxic with right-sided heart-failure. Fulton (1953) found peptic ulceration at necropsy in 9 out of 50 cases of cor pulmonale; but neither Bockus (1944) nor White (1951) observed an increased prevalence of ulcer in heart-failure, though mucosal venous engorgement was common.

Referring to the work of Latts et al. *The Lancet* (1956) commented that it would perhaps be wise to await confirmation of the possible connection between peptic ulceration and hypertrophic pulmonary emphysema before speculating on the cause. The present study, based on necropsy material at the City General Hospital, Sheffield, was designed to elicit further information concerning this relationship.

TABLE I—PREVALENCE OF PEPTIC ULCER IN CONGESTIVE HEART-FAILURE: 88 CONSECUTIVE NECROPSIES

	Cor pulmonale			Other cases of heart-failure		
	Males	Females	Both sexes	Males	Females	Both sexes
No. examined	19	5	24	33	31	64
Peptic ulcer	7	3	10	2	1	3

Prevalence of Peptic Ulceration in Heart-failure

Between March 17, 1952, and March 16, 1953, 88 patients with heart-failure were examined post mortem. All had had congestive heart-failure and had been thoroughly investigated in life, especially with regard to the incidence of cor pulmonale (Flint 1954).

The high prevalence of active peptic ulceration discovered at necropsy in cases of cor pulmonale (10 out of 24), in all of which there had been anoxic heart-failure due to emphysema, contrasted with a prevalence of 3 in 64 other cases of heart-failure (table I). In the cases of cor pulmonale, the ulcers were acute and usually multiple in 5 (all duodenal), chronic in 3, and combined in 2. In the other forms of heart-failure, chronic ulceration was observed in 3 cases; acute ulceration was not seen.

None of the 7 patients with acute ulceration had complained of pain, but 4 died after a massive hæmorrhage. Only 2 had received an oral antibiotic.

Prevalence of Acute Peptic Ulceration in Emphysema

The above figures suggested that further information might be gained from a postmortem study of acute peptic ulceration. Arrangements were therefore made for a special scrutiny to exclude such a condition at all postmortem examinations on patients over the age of 16 for a period of twenty-four months—April 1, 1954, to March 31, 1956. At the end of this period the postmortem reports were reviewed and the original clinical notes studied in every case of acute ulcer, of chronic lung disease, and of heart-failure. Of 87 cases of diffuse emphysema acute peptic ulceration was found in 18 (21%), and of the remaining 1037 cases without emphysema in 17 (1·6%) (table II). The prevalence was a little higher in patients with cor pulmonale, all of whom had exhibited congestive heart-failure in life (column 1), than in the emphysema patients without heart-failure (column 2), but many of the latter had been anoxic. The ulceration was usually situated in the pyloric region of the stomach and multiple.

In the emphysema group evidence of bleeding was found in 8 cases at necropsy and in 3 others in life. In 1 patient the ulcer had perforated. 4 patients had collapsed from unsuspected hæmorrhage. None of the 18

TABLE II—PREVALENCE OF ACUTE PEPTIC ULCERATION IN 1124 CONSECUTIVE NECROPSIES

	Emphysema cases					Remaining cases		
	With heart-failure (cor pulmonale)		Without heart-failure		Both groups			
	M	F	M	F	Both sexes	M	F	Both sexes
Acute ulceration with hæmorrhage ..	5	1	1	1	8	2	5	7
Acute ulceration with perforation ..	1	0	0	0	1	1	0	1
Acute ulceration alone	4	2	2	1	9	3	6	9
Total	10	3	3	2	18*	6	11	17
No. of cases examined	39	14	25	9	87	666	371	1037

* Site of ulceration in 18 emphysema cases: duodenal 3 (single, 1; multiple, 2); gastric 15 (single, 3; multiple, 12).

patients complained of ulcer dyspepsia, and an ulcer was suspected clinically in only 1 case.

It can be assumed from a study of the clinical notes that all the patients with cor pulmonale had had profound hypoxia, hypercapnia, and acidosis, and most of them received treatment for a respiratory infection. A tetracycline drug or chloramphenicol had been given orally to 9 of the 18 patients in whom acute ulceration was proved at necropsy, and to 27 of the 69 patients without ulceration. It is therefore unlikely that the lesion had been caused by the irritant effect of the antibiotic on the gastric mucosa.

Of 17 cases of acute ulcer not associated with emphysema, 5 were admitted to hospital because of bleeding. In the remaining 12 cases, the following lesions were detected: cerebral thrombosis (3), uræmia (2), mitral stenosis with heart-failure (3), lobar pneumonia (3), and hepatic cirrhosis (1).

An active chronic gastric or duodenal ulcer was found in 5 of the 87 emphysema patients.

Discussion

In the first series here described, gastric and duodenal ulceration was detected at necropsy more frequently in patients who had died from cor pulmonale than in those who had died from other forms of heart-failure. In the second series acute ulceration was found to be 13 times more frequent in cases of emphysema than in all the remaining cases submitted to necropsy.

Most patients with emphysema had been severely anoxic—apparently because of respiratory infection. Possible factors in the development of ulceration in cases of emphysema are: (1) acute respiratory infection; (2) chronic respiratory infection; (3) drug toxicity; (4) derangement of the gaseous equilibrium of the blood; (5) a combination of these factors; (6) congestive heart-failure in combination with one or more of these factors, but not by itself; (7) the strain, mental and physical, of a long illness; (8) tobacco, dietary, and nutritional factors.

An answer to this problem of ætiology has not been gained from the present survey. In a controlled clinical investigation Allibone and Flint (1958) found that the prevalence of chronic bronchitis and of acute respiratory infection in patients admitted to hospital with acute perforation or hæmorrhage was similar to that for a control group of surgical emergencies, but only 2 patients had anoxic heart-failure. Thus, the high incidence of peptic ulceration in emphysema is apparently restricted to fatal or severe cases. The possible irritant effect of oral antibiotics can be discounted. The factor common to all fatal cases of emphysema is the derangement of blood gases. Browne and Vineberg (1932) showed that this could influence gastric secretion in animals, but knowledge of the influence of hypoxia and hypercapnia on human gastric secretion is lacking. It is theoretically possible that this gaseous disturbance could either stimulate the secretion of gastric juice or impair the secretion of gastric mucus. Experimental work in this field might yield useful information about the ætiology of peptic ulcer.

Summary

88 patients with congestive heart-failure were examined post mortem. Of 24 cases of cor pulmonale due to anoxic emphysema, 10 had peptic ulceration (7 acute); of 64 cases of heart-failure due to other causes, 3 had peptic ulceration (none acute).

In a second planned series of consecutive necropsies, which included all examinations in patients over 16 during a period of two years, there were 87 cases of severe emphysema (which in most cases was complicated by severe anoxia or pulmonary heart-failure). Acute ulceration was found in 18 (21%), against a prevalence of 17 (1·6%) in 1037 cases without emphysema.

There appears to be a definite association between acute peptic ulceration and severe emphysema. This may possibly be due to derangement of blood gases.

We wish to thank our medical and surgical colleagues at the City General Hospital, Sheffield, for allowing us to peruse the case-notes of patients admitted under their care.

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BRONCHITIS, ASPIRIN, SMOKING, AND OTHER FACTORS IN THE ÆTIOLOGY OF PEPTIC ULCER

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Flint and Warrack (1958) report the prevalence of acute peptic ulcer in over 1000 consecutive hospital necropsies. For cases of generalised emphysema the figure was 21%, compared with 1·6% for the remaining cases without emphysema. In a separate series of 88 consecutive necropsies in cases of congestive cardiac failure, they found a higher prevalence of peptic ulceration in cases of anoxic cor pulmonale (10 out of 24) than in other cases of heart-failure (3 out of 64). A relatively high prevalence of peptic ulceration in emphysema at necropsy was also noted by Fulton (1953), Latts et al. (1956), and Teare (1957).

Hurst and Stewart (1929), reviewing 151 cases of acute peptic ulcer, obtained a history of antecedent respiratory infection in 23%. Many workers, dealing with large series of cases, have reported an increased prevalence of peptic ulcer and its complications in the winter months (Illingworth et al. 1944, Jamieson 1947, 1955, Ivy et al. 1950, Boles and Westerman 1954). It seemed therefore possible that the relatively high prevalence of peptic ulcer in fatal cases of emphysema might be attributable to the respiratory infection which is invariably present in these cases.

To determine the significance of chronic bronchitis and acute respiratory infections in the ætiology of peptic ulcer, we questioned and examined a consecutive series of patients admitted to hospital with either gastrointestinal hæmorrhage or perforation. A series of matched controls, admitted to hospital because of an acute surgical emergency, were similarly examined. In addition we also attempted to assess other ætiological factors, including aspirin, alcohol, tobacco, mental stress, and certain drugs. That aspirin was an important cause of gastric and duodenal hæmorrhage had been suggested by the work of Douthwaite (1938, 1954), Douthwaite and Lintott (1938), and Muir and Cossar (1955). This view, however,

TABLE I—AGE AND SEX DISTRIBUTION

—	Total	Males			Females		
		Under 45	45–64	Over 65	Under 45	45–64	Over 65
Hæmorrhage	100	13	36	13	4	19	15
Perforation	29	10	9	8	1	0	1

was challenged by the work of Paul (1943) and Wolf and Wolff (1943).

Material and Method

During the period December, 1956, to July, 1957, inclusive, 119 patients with acute gastric or duodenal hæmorrhage and 35 patients with acute gastric or duodenal perforation were admitted to the City General Hospital, Sheffield.

Each patient was questioned by one of us as to symptoms of gastric disorder, chronic bronchitis, and acute respiratory infection starting within four weeks of admission to hospital, and then examined. Each patient was also questioned about his consumption of aspirin, sulphonamides, oral antibiotics, alcohol, cortisone and adrenocorticotrophic hormone, phenylbutazone, and other medicines and tablets during the two weeks preceding hospital admission, and about any special strain or worry within four weeks. This information, together with the clinical findings and the results of any investigations, which included radiography of the chest and stomach and, if necessary, gastroscopy, was recorded on a specially prepared form.

TABLE II—CAUSES OF HÆMORRHAGE: 100 CASES

—	Males	Females	Both sexes	Deaths
Peptic ulcer:				
All cases	59	36	95	3
Acute	14	13	27	0
Chronic gastric	11	8	19	1
Chronic duodenopyloric	31	10	41	1
Chronic—site unknown	1	0	1	1
Hiatus hernia, œsophageal	0	4	4	0
Pyloric stenosis	2	1	3	0
Cancer of stomach	2	1	3	2
Œsophageal varices	0	0	0	0
Mucosal tear	1	1	2	0
Diffuse ooze	0	0	0	0
Total	62	38	100	5

Associated diseases: hepatic cirrhosis, 4 cases; nephritis uræmia, 1 case; cerebral thrombosis, 3 cases; lung cancer, 1 case; heart-failure, 1 case; tabetic crisis, 1 case.

A control series of patients were also questioned and examined in a similar manner by the same observer, and the results recorded on the questionnaire. These controls were patients admitted to hospital because of a confirmed non-thoracic surgical emergency or accident. Gynæcological and maternity cases, together with patients who had symptoms of peptic ulcer, were, however, excluded. Each case of hæmorrhage or perforation was matched against a control by selecting from the list of controls the first patient of the same sex, and within the same five-year age-group, who was admitted to hospital within the same two-week period.

A matched control could not be found for 19 cases of hæmorrhage and 6 cases of perforation. In all, 100 cases of hæmorrhage and 29 cases of perforation are analysed together with a similar number of matched controls. Their age and sex distribution are set out in table I (those for the controls were similar), and the causes of bleeding and perforation in tables II and III.

TABLE III—CAUSES OF PERFORATION: 29 CASES OF PEPTIC ULCER

—	Males	Females	Both sexes	Deaths
Acute gastric or duodenal	6	0	6	0
Chronic gastric	2	0	2	1
Chronic duodenopyloric	19	2	21	1
Total	27	2	29	2

It will be seen from table II that in 95 of the 100 cases the cause of hæmorrhage was peptic ulceration, which in 27 cases was thought to be acute. It is unlikely, however, that this latter figure is accurate as the distinction between an acute and chronic ulcer proved to be exceedingly difficult. In 3 cases the hæmorrhage was from a cancer of the stomach, and in 2 patients, 1 of whom had a tabetic crisis, it was thought to come from a mucosal tear caused by excessive vomiting—a little-known but not uncommon cause described by Decker et al. (1953). In each of the 4 cases of hepatic cirrhosis there was definite evidence of peptic ulceration of the stomach and in no instance was the bleeding from œsophageal varices.

There were 5 deaths among the cases of hæmorrhage, which in 2 came from a gastric carcinoma. A 3rd patient died from heart-failure due to anoxic pulmonary emphysema following emergency gastrectomy for recurrent bleeding, and a 4th patient died from cancer of the lung. 18 patients were treated by emergency surgery, with 1 death.

Of 29 patients with perforation, 27 were male and 2 female. In 6 cases the ulcer was acute and in the duodenopyloric region; in 2 it was chronic and gastric, and in 21 chronic and duodenopyloric. 27 patients were treated by simple surgical suture, and 1 by emergency gastrectomy. There were 2 fatalities, both in men aged over 75.

TABLE IV—PREVALENCE OF CHRONIC BRONCHITIS AND ACUTE RESPIRATORY INFECTIONS IN ALL CASES OF HÆMORRHAGE AND PERFORATION

—	Males		Females		Both sexes	
	Series	Controls	Series	Controls	Series	Controls
No. of patients questioned	89	89	40	40	129	129
Acute respiratory infection (onset within 4 weeks):						
Total	35	29	18	13	53	42
Cold sore throat	26	19	16	8	42	27
Cough and wheeze-acute bronchitis	9	10	2	5	11	15
Pneumonia	0	0	0	0	0	0
Chronic bronchitis/emphysema without heart-failure	14	24	3	5	17	29
Chronic bronchitis/emphysema with anoxic heart-failure	2	0	0	0	2	0

Acute Respiratory Infection and Chronic Bronchitis

The prevalence of acute respiratory infection and of chronic bronchitis in 129 cases of hæmatemesis or perforation is compared with the matched control series in table IV. The prevalence of acute upper respiratory infection (53 out of 129) was not significantly higher than in the control series (42 out of 129); and the prevalence of chronic bronchitis, which was defined as chronic cough with wheeze or dyspnœa not due to heart-disease or other causes, was slightly higher in the controls. Both in ulcer cases and in controls, chronic bronchitis was encountered more frequently in men than in women, and

TABLE V—PREVALENCE OF CHRONIC BRONCHITIS AND ACUTE RESPIRATORY INFECTIONS: ACUTE ULCER AND OTHER CASES COMPARED

—	Acute ulcer	Controls	Other cases	Controls
No. of patients questioned	33	33	96	96
Acute respiratory infection	13	12	40	30
Chronic bronchitis emphysema	8	4	11	25

TABLE VI—OTHER POSSIBLE FACTORS: ALL CASES

	Series	Controls
No. of patients questioned	129	129
Within 2 weeks:		
Aspirin, total	61	59
Aspirin, 12 or more tablets	25	25
Alcohol, total	50	51
Alcohol, excess or drunken bout	9	5
Sulphonamides	1	3
Oral antibiotics	2	1
Cortisone/corticotrophin	0	0
Phenylbutazone	0	0
Within 4 weeks:		
Episode of severe mental strain	5	5

was uncommon below the age of 45. A further breakdown of the figures into age-groups showed no significant difference in the prevalence of chronic bronchitis and respiratory infection between controls and ulcer cases. It must be stressed, however, that chronic bronchitis was complicated by anoxia and heart-failure in only 2 cases.

The two groups (i.e., the 33 cases of acute ulcer, and the 96 cases of hæmorrhage and perforation due to other causes—which in 91 cases was peptic ulcer) are compared in table v. The prevalence of acute respiratory infection in both groups was comparable to that in the matched controls. The prevalence of chronic bronchitis in cases of acute ulcer was apparently higher than in their controls, but the numbers are too small to be significant. In the other 96 cases, the prevalence of chronic bronchitis was noticeably less than in the respective control group.

For hæmorrhage and perforation, the prevalence of respiratory infection was similar.

TABLE VII—OTHER POSSIBLE FACTORS: ACUTE ULCERS

	Acute ulcers	Controls	Other cases	Controls
No. of patients questioned	33	33	96	96
Within 2 weeks:				
Aspirin, total	20	15	42	44
Aspirin, 12 or more tablets	7	7	18	18
Alcohol, total	14	10	36	41
Alcohol, excess or drunken bout	4	1	5	4

It is evident that neither acute nor uncomplicated chronic respiratory infection is important in the ætiology of gastric hæmorrhage or perforation.

Drugs and Smoking

The prevalence of the ingestion of certain drugs, all within the two weeks before admission to hospital, and of any special strain or worry within four weeks, is given in tables VI and VII. For aspirin, usually taken in the insoluble form, the figure is almost identical for ulcer cases and controls. Nor does an inspection of these figures show any evidence that the other factors are of much importance in causing either gastric hæmorrhage or perforation.

An inquiry as to smoking habits was started later in the investigation. 107 patients with hæmatemesis or perforation and 107 matched control patients were questioned about their smoking habits at the time of their illness and the answers are recorded in table VIII. Among male patients there were 58 cigarette-smokers, compared with 42 in the control group. The probability that this difference was due to chance is less than 1%.

TABLE VIII—SMOKING HABITS AT THE TIME OF THIS ILLNESS

	Males		Females		Both sexes	
	Series	Controls	Series	Controls	Series	Controls
No. of patients questioned	76	76	31	31	107	107
Cigarettes	58	42	8	8	66	50
Pipe only	4	7	0	0	4	7

Discussion

Before this investigation we had been impressed by the frequent association of respiratory infection with gastric or duodenal hæmorrhage, and we had presumed that the relationship was causal. From our survey it is now clear that this is not so, for respiratory infections are an equally common antecedent of other acute surgical emergencies. Likewise, there is no evidence of a causal relationship between uncomplicated chronic bronchitis and peptic ulcer. The relatively high prevalence of chronic bronchitis both in male patients admitted to a Sheffield hospital with the complications of peptic ulcer and in male patients with acute surgical emergencies—16 and 24 respectively out of 89 cases (22·5% for all 178 cases)—merely reflects the high prevalence of this disease in northern industrial cities of England.

It is clear that the high prevalence of acute peptic ulceration at necropsy (Flint and Warrack 1958) cannot be attributed to simple emphysema or to acute respiratory infection, but must be due to some other factor: possibly long and severe hypoxia or hypercapnia, which invariably precedes death from emphysema and cor pulmonale. It must again be emphasised that only 2 cases of cor pulmonale were encountered in the present study.

The results of this survey support Jamieson's contention (1955) that the increased prevalence of perforation in winter months is due, not to the increase of respiratory infections during this period, but to other factors.

We must also conclude that aspirin, although a gastric irritant, is a rare cause of hæmatemesis. This confirms our clinical experience that even the large doses often taken by suicidal patients rarely cause massive hæmorrhage.

While there was no evidence that mental stress was an important factor, this was so difficult to measure and assess that we are doubtful whether any valid conclusions can be drawn from this aspect of the survey.

The relatively high proportion of cigarette-smokers among male ulcer patients, which has been suspected by many physicians, has been confirmed.

Summary

100 patients admitted to hospital on account of massive gastric or duodenal hæmorrhage and 29 patients admitted for acute gastric or duodenal perforation were questioned and examined. A matched control series of patients who had been admitted for another non-thoracic surgical emergency or accident were questioned by the same observer.

The prevalence of acute respiratory infection and of chronic bronchitis uncomplicated by anoxia or heart-failure was similar in the two groups. The consumption of alcohol, aspirin, and certain other drugs, and the frequency of mental stress was also similar. The number of cigarette-smokers among males was significantly higher in the ulcer cases than in the controls.

It is concluded that acute respiratory infection, uncomplicated chronic bronchitis, and aspirin are rare causes of bleeding and perforation. It is unlikely that these factors could be responsible for the relatively high prevalence of acute peptic ulceration in cases of emphysema and cor pulmonale at necropsy reported by Flint and Warrack (1958).

We are indebted to the physicians and surgeons of the City General Hospital, Sheffield, who kindly allowed us to question and

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ANÆSTHESIA FOR ŒSOPHAGEAL ATRESIA

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SENIOR REGISTRAR IN ANÆSTHETICS AT THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET, AND AT UNIVERSITY COLLEGE HOSPITAL, LONDON

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CONSULTANT ANÆSTHETISTS AT THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET

ATRESIA of the œsophagus has been recognised for a long time, but the first successful attempt at anastomosis was made only sixteen years ago. At the Hospital for Sick Children, Great Ormond Street, between October, 1953, and November, 1956, there were 54 cases, and 30 of the infants are still living.

The incidence is hard to determine. Fairlie (1954) reviewed the cases occurring over five years in Glasgow and obtained a figure of approximately 1 in 5000 births, but the estimate of Belsey (1950) was 1 in 800.

Diagnosis

Early diagnosis, by the correct method, is of great importance. Atresia of the œsophagus should be suspected in any newborn child in whom an excess of mucus and saliva persists in the mouth and pharynx. If feeds have been attempted, there will be a history of cyanotic attacks and choking.

Contrast material, of any kind, should never be used to establish the diagnosis, because of the risk of spreading it through the respiratory tract, adding to the mucus (and sometimes milk) already in the trachea and bronchi and thus causing respiratory obstruction. An example of this is seen in the figure. Of the 54 cases at this hospital 23 had been given contrast media before admission.

To confirm the diagnosis, all that is necessary is to pass a soft rubber catheter through the mouth. If the catheter is held up less than 4 inches from the gums, and if stomach contents cannot be withdrawn, atresia of the œsophagus is probably present.

Types of Œsophageal Atresia

According to Waterston (1954) there are two main types, and three rare types.

Main Types

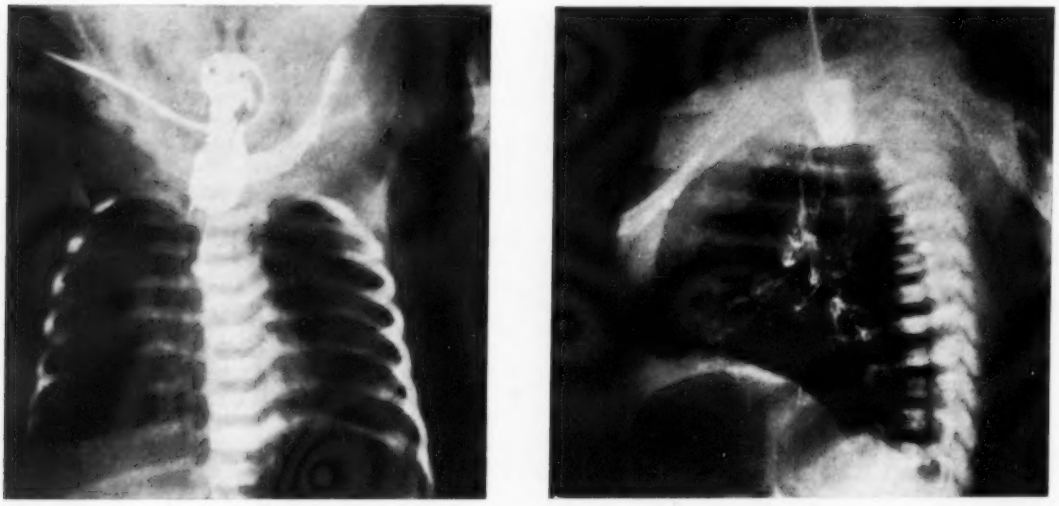
(*a*) Atresia with tracheo-œsophageal fistula into the lower segment of the œsophagus (90% of the cases).
(*b*) Atresia without fistula (9% of the cases).

Rare Types

(*a*) Atresia with tracheo-œsophageal fistula into both lower and upper segments of œsophagus.
(*b*) Atresia with tracheo-œsophageal fistula into the upper segment of œsophagus.
(*c*) Fistula without atresia.

Association with Other Abnormalities

Œsophageal atresia is often associated with other congenital abnormalities, some of which may be incompatible with life for more than a few days. In our series the commonest lesion was congenital heart-disease, which cannot always be diagnosed before operation. These babies may appear normal in every way, with good colour, good tone, and normal heart sounds; yet at necropsy a grossly abnormal heart may be found. Thus in case 39 the child died unexpectedly at the end of operation and was found to have transposition of the great vessels, infantile coarctation of the aorta, and ventricular and atrial septal defects; and there were several other cases in which heart-disease was detected



(*a*) (*b*)
(*a*) Before and (*b*) after coughing following instillation of iodised oil (ref. *Anæsthesia*, 1956, no. 2).

only at postmortem examination or when the patient was seen again later. Furthermore, many of these cases have conditions such as rectal atresia or cleft palate, and in our series there have been infants with mongolism, hydrocephalus, agenesis of kidney, agenesis of lung, mucocolpos, and hæmangioma of liver.

Of our 19 cases in which there were other major congenital defects, 14 died (tables I and II), whereas in the 35 uncomplicated cases there were only 10 deaths. Thus the survival-rate was about 25% in the first group compared with about 70% in the second.

TABLE II—MORTALITY IN RELATION TO OTHER ABNORMALITIES

Classification	No. of cases	No. of deaths	Mortality %
Tracheo-œsophageal fistula only or complicated by minor congenital abnormalities	31	9	29
Premature infants with tracheo-œsophageal fistula only or complicated by minor congenital abnormalities	4	1	25
Tracheo-œsophageal fistula complicated by major congenital abnormalities	13	8	61·5
Premature infants with tracheo-œsophageal fistula complicated by major congenital abnormalities	6	6	100
Total	54	24	44·4

Treatment

On admission to hospital the child's general condition is assessed, and the diagnosis is confirmed radiologically by passing a radio-opaque catheter into the upper pouch of the œsophagus. The condition of the lungs can be seen in the same X-ray. There is always collapse of the right upper lobe, and there may be patches of collapse throughout both lungs. Often intercostal retraction is present, and breathing may be further embarrassed because of distension of the stomach by air sucked in through the fistula. If the fistula is valvular, the stomach and intestines will overdistend with air, in which case operation is extremely urgent. If the stomach is not distended, operation should be delayed for a few hours in order to:

(i) Commence antibiotic treatment.
(ii) Clear the air-passages as much as possible.
(iii) Obtain compatible blood.

Drainage of the trachea and bronchi is helped by a head-down tilt. Only a soft rubber catheter should be used to suck out the pharynx and upper pouch, although the wall of the pouch is in fact hypertrophied and therefore difficult to perforate.

TABLE I—SUMMARY OF CASES

Case	Age (days)	Birth-weight (lb. oz.)	Radio-opaque medium	Other congenital abnormalities	Relaxant	Immediate postoperative respiratory difficulty	Result
1	1	..	L	..	T	+ + +	Died
2	1	5 7	L	..	T	+ + +	Died
3	1	..	L	..	None	None	Survived
4	2	4 0	L	Rectal atresia	T	+ +	Died 5 days later, after gastrostomy
5	4	8 10	L	..	T	None	Survived
6	6	5 12	L	Right-sided aortic arch	T	None	Survived
7	4	3 14	D	Right-sided aortic arch	T	+ + +	Died
8	2	3 12	None	Rectal atresia; one kidney absent; hydronephrosis	None	Collapsed	Died
9	4	6 12	None	None	T	None	Survived
10	4	9 0	None	None	None	None	Survived
11	1	5 10	B	Atrial and ventricular septal defects	..	Collapsed	Died
12	5	5 14	L	Right-sided aortic arch	..	+ + +	Died
13	6½	6 4	B	None	T	+ + +	Died
14	7	8 0	None	Hydrocephalus	T	None	Died 2 days later
15	3	5 10	L	Fallot's tetralogy	T	None	Survived
16	1	8 1	None	None	None	Tension pneumothorax	Survived
17	4	7 6	None	None	T	None*	Survived
18	2	7 0	L	None	T	None	Survived
19	1	3 4	None	Atrial septal defect	G	+ + +	Died
20	3	4 12	None	None	None	None	Survived
21	2	7 9	None	Pulmonary stenosis	G	None	Survived
22	2	3 9	L	Mongolism; ventric. septal defect; persist. duct. arterios.	None	+ + +	Died
23	3	6 10	L	None	None	None	Died
24	1	..	None	None	None	None	Died
25	3	6 4	L	None	S	None	Survived
26	3	4 8	None	None	S	None	Survived
27	6	7 9	None	None	S	None	Survived
28	1	6 3	None	None	S	None	Survived
29	4	7 1	None	Ectopic anus; sclerema	S	..	Died
30	2	6 1	L	Large liver tumour	S	None	Died
31	2	..	None	None	S	None	Survived
32	1	5 10	None	Rectal atresia: mucocolpos	S	None	Died 6 weeks later, after 2nd operation
33	2	7 8	L	None	S	None	Survived
34	5	4 12	None	None	S	None	Survived
35	1	5 13	None	None	None	None	Survived
36	3	6 0	None	Rectal atresia	S	None	Survived
37	½	6 2	None	Atrial and ventricular septal defects	S	Collapsed	Died
38	5	7 0	None	Agenesis of left lung; heart-disease	T	None	Died 6 weeks later, after 2nd operation
39	1	7 0	None	Great vessels transposed; aorta coarctated; tricuspid atresia; cleft palate &c.	S	Collapsed	Died
40	2	3 13	None	Rectal atresia	S	None	Died 2 months later
41	2	6 2	L	None	S	Immediate postoperative collapse responded to treatment	Survived
42	10	7 4	L	None	T	None	Survived
43	2	6 8	None	None	S	None	Died
44	2	6 6	None	None	T	+ +	Survived
45	7 hr.	6 10	L	Ectopic anus; cleft palate	S	None	Survived
46	4	6 14	None	None	S	None	Survived
47	3	6 12	D	Heart-disease	S	None	Died later
48	1	6 0	None	None	S	None	Survived
49	4	8 0	None	None	S	None	Survived
50	5	5 0	None	Heart-disease; sclerema	..	..	Died*
51	2	6 14	None	None	None	None	Survived
52	3	6 9	None	None	S	None	Survived
53	3	7 7	L	Second tracheo-œsophageal fistula	S	+ + +	Died later
54	1	5 11	L	Rectal atresia	T	+ +	Survived

L = 'Lipiodol'. D = 'Dionosil'. B = barium. T = tubocurarine. S = suxamethonium. G = gallamine.
* In this case the operation was confined to tracheostomy and gastrostomy.

Preoperative intravenous fluid is unnecessary, for the child is seldom dehydrated; but an intravenous drip (5% dextrose, preferably into the left arm) should be set up in the operating-theatre to facilitate administration of drugs, or blood, if required.

Atropine 0·3 mg. is given intramuscularly half an hour before operation. This stops the flow of saliva, which may be inhaled, and also prevents the vagal slowing of the heart which may result from local surgical stimulation. But if the secretions are viscid, atropine, by increasing their viscosity, may cause further obstruction to breathing, and is better avoided, though it may be given during the operation if the heart-rate slows unduly.

The Anæsthetic Plan

Anæsthesia for œsophageal atresia must provide for a right thoracotomy and transpleural approach to the mediastinum, where, with the right lung collapsed, the upper and lower pouches of the œsophagus are identified, dissected out, and the two ends anastomosed. Diathermy is used.

To ensure oxygenation, and to permit removal of secretion from trachea and bronchi during operation, intubation of the trachea is necessary, and this is one of the most important details of the anæsthetic procedure.

Surgery is possible after endotracheal intubation and nitrous-oxide oxygen anæsthesia (10 cases; see table II). However, as the breathing of newborn infants is more diaphragmatic and abdominal than intercostal, each breath will draw the lower pouch down and away from the upper pouch; similarly swallowing will cause the upper pouch to move upwards and away from the lower pouch. This constant movement and jerking of the diaphragm makes anastomosis difficult for the surgeon, who is already working in a small field. A sound anastomosis is very important, because postoperative leaking causes mediastinitis.

Perfect conditions may be obtained by the use of muscle relaxants. Oxygenation is effected by controlled inflation of the left lung and the part of the right lung which is not completely collapsed by retractors. Thus breathing may be modified to avoid interference with the operation.

Choice of Relaxant

For some time at this hospital *d*-tubocurarine chloride was used, but recently we have found that with suxamethonium ('Scoline') there are fewer cases of respiratory difficulty or complications, immediate or delayed. Of the 23 cases given suxamethonium, only 1 (case no. 53) showed postoperative respiratory difficulty, and this was traced to a second tracheo-œsophageal fistula; whereas of the 18 cases given tubocurarine or gallamine 8 had postoperative respiratory trouble (table III). Stead (1955) showed that the newborn infant is far more resistant to depolarising agents than the adult, though the pseudocholinesterase level may be as low as 40%, and also that the inverse relation between sensitivity to depolarising agents and to competitive agents holds true. Thus the newborn is very sensitive to tubocurarine, reacting in the same way as a myasthenic patient.

The advantage of suxamethonium is that there is no danger of the patient remaining curarised after the operation. The disadvantage is that its effect lasts so short a time that repeated injections must be made. (Each injection tends to have a longer effect than the one before). With tubocurarine, on the other hand, no matter how small the dose, it is scarcely possible to ensure that the patient is not still curarised at the end of the operation, for reversal of its action by neostigmine does not seem to be reliable (Rees 1950). Unlike those of the adult, the limb movements of a partially curarised infant may appear vigorous, but they differ from the normal movements by their jerkiness.

TABLE III—RELATION OF POSTOPERATIVE RESPIRATORY DIFFICULTY TO THE USE OF RELAXANTS

Relaxant used	No. of cases	Cases showing postoperative respiratory difficulty	
		Number	Percentage
Tubocurarine or gallamine	18	8	44
Suxamethonium	23	1	4
Unrecorded	2	1	..
None	10	1	10

Anæsthetic Management

The first step in anæsthetising these patients is to ensure that they are well oxygenated. Newborn infants have a high hæmoglobin—usually above 100%—which means that they will show cyanosis quickly.

Oxygen alone is given for 2–3 minutes, after which laryngoscopy is carefully carried out on the conscious patient (M. H. and P. M. H.). The contents of the pharynx and upper pouch of the œsophagus (secretions, milk, iodised oil) are removed by suction. The fine gum-elastic catheter used for this purpose may also be passed through the cords, sucking trachea and bronchi clear. The smallest-size endotracheal tube is passed into the trachea. As the average length of the trachea in the newborn is 4 cm., care must be taken not to pass the tube further than this through the cords. A Cobb's connection is used so that suction of the trachea and bronchi is possible during operation.

An alternative method of induction (R. W. C.) is to give intravenous suxamethonium after a few breaths of oxygen, followed by laryngoscopy and careful suction of pharynx and trachea. Intubation and suction are made easier by giving a relaxant first, but it is probably wiser to view the larynx before suxamethonium is injected. Unless one has reasonable confidence in the intubation, the first method should be used, because it is difficult to inflate the lungs of these small patients with no tube in situ.

Anæsthesia is maintained with equal amounts of oxygen and nitrous oxide, and intravenous suxamethonium is given intermittently. The initial dose is 0·5 mg. per lb. body-weight and the length of time necessary to eliminate this is noted. If it is short, as is usual, the next injection is 1·0 mg. per lb., and this is repeated, as required, until the time between injections is found to be lengthening. The dose is then decreased to 0·5 mg. per lb. or even less. If possible the total dose should not exceed 50 mg. The suxamethonium is diluted, with sterile water, to a strength of 5 mg. per ml.

If the intravenous infusion is not satisfactory, suxamethonium may be given in the same dosage intramuscularly—preferably with hyaluronidase, to ensure that all the drug is absorbed before the end of the operation. Each injection by this route takes effect within 2 minutes and lasts for about 10 minutes.

After induction, a nasal catheter (size 5), containing a fine polythene tube (size 2), is passed through the nose

to the limit of the upper pouch. This helps the surgeon to identify the pouch; and, when this is opened, the polythene tube is anchored and the rubber catheter removed. Just before the final anastomosing stitches are inserted, the polythene tube is passed through the lower pouch into the stomach, where it remains for post-operative feeding purposes.

Respirations are controlled throughout the operation, using a high flow of gases (3 litres oxygen and 3 litres nitrous oxide) with, or without (M. H.), a 12 oz. or 8 oz. Waters' canister containing soda-lime. The pressure needed to inflate the lungs of the newborn is more than that required for an older child, partly because the smaller endotracheal tube has a higher resistance. Elimination of carbon dioxide is assisted by the high flow of gases, by adequately controlled respiration, and by the use of the canister—the high flow of gases being the most important factor.

The average newborn child requires about 25 c.cm. oxygen per minute (Smith 1951), and as the tidal air is approximately 20 c.cm. (Cross 1949), a rapid respiratory rate is needed. Rates of up to 40 per minute are usual. Rates exceeding this may diminish tidal exchange and embarrass venous return to the heart.

With this technique the patient, at the end of operation, will be awake and crying, with a good colour, good muscle tone, and good movements of the chest wall.

Difficulties

The first difficulty encountered during anæsthesia may be distension of the stomach with anæsthetic gases passing through the fistula, particularly if this is large. (If the endotracheal tube itself passes through the fistula into the lower pouch, the stomach will be inflated but not the lungs.) This difficulty can usually be overcome by altering the position of the tube; but, if not, the surgeon must be asked to close the fistula as quickly as possible. Meanwhile, a hand pressed gently over the stomach will prevent overdistension, and permit inflation of the lungs. When the fistula has been closed, the stomach may be emptied of gases by passing a catheter through the lower pouch.

The pressure of the assistant's retractor may cause anxiety; for the trachea and bronchi are soft and easily compressed. If a good colour can be maintained by inflation of the left lung, pressure on the right main bronchus does not matter; but usually this is not so, and the pressure of the retractor must be released. Pressure over the pericardium can slow the heart and should be avoided.

One of the main difficulties is estimation of the degree of shock. The newborn infant may be apparently well only a short time before it is obviously moribund. The various stages of shock are not easily recognisable as they are in the adult. Assessment of the patient's condition is helped by strapping a small stethoscope over the heart. As in the fœtus, the onset of shock is indicated by slowing of the heart-rate. The radial pulse disappears early, because of vasoconstriction in the limbs. If any radial pulse can be felt, the condition is satisfactory; but its absence does not imply the degree of shock which would be expected in an adult undergoing thoracotomy.

The length of the operation is important; for if the chest is open for more than $1^1/_2$ hours the child's general condition will usually give rise to anxiety. The use of relaxants, as described above, allows the surgeon to work under ideal conditions, using diathermy, and thus decreases operating-time.

Usually, little blood is lost and its replacement may not be necessary. However, as the blood-volume of the newborn is 40 ml. per lb. (making a total of only 200–300 ml.), even a small loss must be replaced if shock is to be prevented. A deficit of more than a tenth of the total volume should not be permitted, for infants tolerate blood-loss badly, and later replacement is not always successful. If the loss cannot be measured, 10 ml. of blood per lb. body-weight may safely be given without overloading the circulation; but it is our practice to weigh the swabs and to replace the blood through a finely graduated drip chamber.

The temperature of these patients always falls during operation, and to a certain extent this is a protective mechanism. Temperatures may be as low as 86°F, though more often the reading is 88–89°F. The patient should not be actively warmed, but further heat loss should be guarded against. He will gradually regain the normal temperature, sometimes taking two or three days to do so; and the quicker he regains it the better will be his general condition. This is still a controversial subject.

When the operation is complete, the right lung is gently re-expanded. If a thoracic drain is used, it is attached to an underwater seal as soon as the chest is closed. The pharynx is carefully sucked out, and when the respirations are adequate, the endotracheal tube is removed.

Postoperative Management

Constant skilled nursing attention, together with almost constant medical supervision, is essential during the first few postoperative days. The airway must be kept clear of secretions, by repeated suction of mouth and pharynx. The infant is nursed flat because of the danger of reflux gastric secretions reaching the site of the anastomosis when in the head-down position. The secretions may be so viscid that suction is difficult. 'Alevaire', a detergent, lowers the surface tension of the thick mucus, thus facilitating suction: it is given by passing the oxygen over a solution of alevaire on its way to the box in which the infant is nursed. Pulmonary collapse due to blocking of the bronchi by secretion can thus be prevented.

This problem is complicated by abnormalities in the trachea itself. There is a valve-like fold of mucous membrane lying over the fistula opening in the posterior wall of the trachea, as described by Franklin and Graham (1953). This fold may become œdematous after operation, causing further restriction of the airway. Also, because of abnormality of its cartilaginous rings, the trachea may tend to collapse on inspiration. If the airway is restricted in this way, the endotracheal tube may have to be replaced.

As a routine, the chest is radiographed on the first postoperative day.

Conclusions

What conclusions may be drawn, and what policy formulated, from this small and unselected series of 54 cases?

Early recognition of the condition and early transfer to a unit accustomed to such cases, are major conditions of success. Additional abnormalities diminish the likelihood of saving the child.

Where the anæsthetist can tip the balance towards success seems to be in his choice of a relaxant technique

giving ideal conditions to the surgeon and therefore shortening the operating-time. Of the relaxants, succinylcholine is preferable to tubocurarine or gallamine, because its use is much less often followed by postoperative difficulties in respiration. Success depends not only on the main lines of policy but also on attention to the minutiæ of technique.

We gratefully acknowledge permission to describe this series of cases, all of which were treated by the surgical consultant staff at the Hospital for Sick Children, Great Ormond Street. To all our anæsthetic colleagues, we also express our sincere thanks for their kindly cooperation.

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STAPHYLOCOCCAL INFECTION IN MOTHERS AND INFANTS

MATERNAL BREAST ABSCESSES AND ANTECEDENT NEONATAL SEPSIS

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ANTIBIOTIC-RESISTANT strains of staphylococci are now firmly entrenched and widely distributed in New Zealand. Most epidemics and sporadic infections have been caused by a staphylococcus of relatively high drug resistance, of the phage-type 80/81, the type of organism closely studied by Rountree (1955) in Australian maternity infections. One serious maternity hospital epidemic with a high mortality-rate has occurred (Beaven and Burry 1956, Douglas and Knights 1956) and less serious and smaller epidemics have arisen throughout the country. Early in 1957 the number of patients admitted to a general hospital for treatment of breast abscesses during lactation reached serious proportions (15 cases in four months), whereas, in the preceding fifteen years (annual birth-rate of 1500 to 2300) only 4 to 6 cases were admitted each year. When it was found that several of these women had been delivered in one maternity hospital (Hospital B), an investigation was instituted, and techniques were revised to control the epidemic and prevent further introduction and spread of infection.

The relationship of maternal breast abscess, neonatal sepsis, and staphylococcal carriage in staff, mothers, and infants was also studied.

A further outbreak in a smaller institution was also investigated. The results of these investigations and the methods used to control the outbreaks are reported below.

Material and Methods

Maternal Breast Abscesses

37 cases of maternal breast abscess, developing in the weeks following childbirth, are known to have followed confinement in maternity homes in this city in the past twelve months. 31 of these required hospital admission for incision and drainage, and in 32 cases bacteriological investigations were carried out. Information was obtained concerning the length of the time between delivery and onset, relationship to lactation, cracked nipples, infection in the infant, and place of delivery. In 12 cases, additional information was available from the mother's nose and/or breast milk, and the infant's nose and/or lesion, as well as from the abscess. Breast milk from 33 women (11 with abscesses and 22 normal) was examined for staphylococci.

Buildings

Bacteriological investigations were carried out in Hospital B, a maternity unit of 44 beds, attached to Hospital A, an acute general hospital which serves a population of about 100,000; and a subsidiary investigation was carried out in a smaller "open" maternity home (Hospital C) of 20 beds where women are attended by their own practitioners.

Hospital B is a three-storey concrete building, adjacent to Hospital A but with a separate staff. It is of modern construction and is designed for efficient cleaning and dust control. The patients are accommodated in single, double, and four-bed wards, and there are two large air-conditioned nurseries, an air-conditioned room for premature infants, and an isolation-room for the segregation of infected infants.

Hospital C is a single-storey brick building which was not originally designed for maternity work and is older than Hospital B. It contains 4 four-bed wards, 2 single, and 1 double room, and 2 rather small nurseries. Because of the difference in the design and state of the fabric of the two buildings, efficient cleaning is more difficult in Hospital C than in Hospital B.

In both institutions, dust and air samples were collected and examined for pathogenic staphylococci. Dust was collected on moistened, serum-impregnated, cotton-wool swabs, and air was cultured by means of the slit-sampler, at the rate of 5 c. ft. of air to one blood-agar plate in a five-minute period.

Neonatal Sepsis

In Hospital B, in the first four months of 1957, while not all "sticky eyes" or minor skin lesions were swabbed, bacteriological data were available on septic skin lesions from 26 of the 232 infants born alive in that period. After the introduction of special control measures in April, every suspected staphylococcal lesion in the infants was swabbed for bacteriological examination. In the six months May to October, 1957, 52 (13%) of the 402 infants born alive were swabbed. These included 25 skin lesions and 21 cases of "sticky eye". In unselected cases, swabs were taken from the nose and umbilicus of the infant, as well as from the lesion, and also samples from the mother's breast milk.

Nasal Carriage of Staphylococci

The nasal carriage-rate was investigated in nursing and other staff of Hospital B in January, May, and September, and in Hospital C in September.

With the help of three senior students (Burkinshaw, Hamer, and Swier 1957), 113 consecutive mother and infant pairs were swabbed. The mothers were swabbed within twenty-four hours of admission, and again on the tenth day of the puerperium; and the infants on the fourth and tenth day of life. 19 mothers in Hospital C and 22 infants in that home on a given day were swabbed.

Bacteriology

Specimens of exudate, or nasal swabs, were collected on sterile serum-impregnated swabs, and primary culture was made on to blood-agar plates. Colonies of staphylococci were subcultured into nutrient broth and tested for coagulase activity by the method of Fisk. Strains showing coagulase activity, which was taken as an indication of pathogenicity, were tested for antibiotic sensitivity by a disc method. Six-hour nutrient-broth cultures were subcultured on to nutrient-agar plates in such a way that a peripheral zone of the plate, 2 cm. wide, was sown with the test organism. Discs impregnated with various antibiotics (penicillin 3 units, streptomycin 66 μg., chlortetracycline (aureomycin) 20 μg., chloramphenicol 20 μg., oxytetracycline (terramycin) 20 μg. per ml.) were placed along the inner edge of the cultured zone. Each disc

was controlled by making radiating streak cultures of the Oxford strain of staphylococcus from the centre of the plate to each disc. A zone of inhibition of the test organism equal to at least half that shown by the control staphylococcus was taken as indicating that the test organism was sensitive to the antibiotic concerned.

Methods of Control

When the "epidemic strain" of staphylococcus had been determined the following measures were taken to control its further spread and to attempt its elimination from the hospital.

Nasal swabs of all Hospital B staff (nursing, medical, cleaning, and clerical) were taken and carriers of the "epidemic strain" were put off duty and treated with local application of 1% chlorhexidine ('Hibitane') cream or neomycin-bacitracin ointment until free of contamination.

Any infant with clinical sepsis was isolated, either by "rooming in" with the mother or in the isolation nursery. Barrier nursing was applied and bacteriological investigations were made. Gowns and masks were worn in the nurseries at all times, and hexachlorophene (G11) soap and 1% chlorhexidine hand-cream were used routinely before and after infant handling. Disposable towels continued in use. The bathing of babies was discontinued; they were oiled after birth and cot-treated thereafter until discharge on the twelfth to fourteenth day.

The heating and ventilating plant was overhauled. One plant, which was removing dusty air from a nursery and returning it to the premature nursery, was converted to the "plenum" system for both rooms. Blinds and curtains in the nurseries are being replaced by external blinds.

All bedding was sent to the laundry when mother and infant were discharged. Cotton articles were washed and steam-pressed, which effectively sterilised them, and blankets were washed and treated with 'Lissapol' and 'Cirrasol' (Blowers and Wallace 1955).

The midwife admitting a mother asked for a family or personal history of recent sepsis. A nursery record of all infections was started; and measures were taken to avoid overcrowding as far as was possible in a public institution which has to admit obstetric emergencies on request.

The umbilicus of each infant was dressed daily with alcohol. The use of a binder (until the cord separated) was continued, since the results of swabbing were such that no change in technique was considered necessary. Circumcisions were discontinued while there was any risk of nursery infection. The routine instillation of sulphacetamide drops into the eyes of each newborn infant was stopped, and instead the eyelids were wiped with sterile saline-soaked cotton-wool.

TABLE I—PHAGE-TYPES OF STAPHYLOCOCCI ISOLATED FROM 33 MATERNAL BREAST ABSCESSES

Phage	Antibiotic sensitivities * Su	P	S	A	C	T	No. of strains	No. of cases
52/52A/80/81 ..	−	−	±	−	+	−	1	24
80/81	−	−	±	−	+	−	20	
	−	−	+	+	+	+	2	
	−	−	−	+	+	+	1	
3B/3C/55	±	−	+	+	±	±	1	2
	+	+	±	±	±	±	1	
47/+	+	−	+	+	+	+	1	1
53/54/75/77/+ ..	−	−	+	+	+	+	1	1
Unknown	.	+	+	+	+	+	1	5
	.	−	+	−	+	−	1	
	.	−	+	+	+	+	1	
	Coagulase-negative						1	
	Not tested						1	

* Sulphonamides, penicillin, streptomycin, chlortetracycline (aureomycin), chloramphenicol, oxytetracycline (terramycin).
+ = sensitive; − = resistant; ± = moderately sensitive.

TABLE II—DISTRIBUTION OF BREAST ABSCESS CASES AND THEIR PHAGE-TYPES

—	No. from Hospital B	Hospital C	Other homes	Total
No. of cases swabbed ..	15	12	6	33
No. coagulase-positive ..	15	11	6	32
No. of 80/81 strains ..	10	9	5	24
No. of 3B/3C/55 strains ..	1	0	1	2

Methods of Treatment

In addition to isolation, each infected infant received local treatment for the lesion.

10% sulphacetamide was given for conjunctivitis and 1% gentian violet for pustules, if the infant remained well. Systemic antibiotics, as indicated by the antibiotic-sensitivity tests, were reserved for cases of severe paronychia, furuncles, or abscesses. In most cases chloramphenicol was used and no reactions were observed. Any child who was toxic was transferred to the children's ward of the main hospital. Only 1 transfer was necessary in over 50 cases in eight months. Any lesion containing pus was incised.

Results

Maternal Breast Abscesses

Coagulase-positive staphylococci were obtained from 31 of 32 cases investigated. 24 strains were identified as phage-type 80/81, and 21 of these had a characteristic antibiotic-sensitivity pattern (table I).

Time of onset.—23 of the 33 abscesses developed between two and four weeks after confinement; 2 as late as twelve and fourteen weeks. No relationship in time to any significant change or event in lactation has been discovered.

Mode of onset.—27 patients out of 29 gave a history of cracked nipples in the mother or infection in the infant, or both. In the 29 patients interrogated, the abscess developed after an infection in the infant on 25 occasions, and after a cracked nipple in 14. In 11 there had been both an infection and a cracked nipple. Many of these infants were unfortunately not available for detailed bacteriological investigation by the time the mother was seen in hospital. 9 mothers are known to have had septic skin lesions which developed after confinement and before the abscess.

Antibiotics had been given to 22 patients, but failed to cure the lesion and in no case did antibiotics cure once a mass had formed.

16 patients required incision on two or more occasions and both breasts were affected in 5. The stay in hospital varied from three days to over six weeks (including readmissions); the majority of patients needed one to three weeks' hospital treatment.

The source of the cases and the bacteriological findings are shown in table II. The 15 patients from Hospital B had been delivered in a six months' period, giving an abscess rate of 4% of confinements. 9 of the Hospital C patients were delivered in a period of four months, a rate of 5% of confinements.

Table III gives the results of groups of swabs taken from the same case (the maternal nose, breast milk, infant's nose, and/or lesion). While the strain of organism isolated from the abscess was isolated from the mother's nose on only 2 out of 12 occasions, the "abscess strain" was carried by the infant in almost all the cases studied.

TABLE III—COMPARISON OF STAPHYLOCOCCI OBTAINED FROM THE NOSE AND BREAST MILK OF THE MOTHER, AND THE NOSE AND LESION OF THE INFANT, WITH THOSE FROM THE MATERNAL BREAST ABSCESS

—	Maternal nose	Maternal milk	Infant's nose	Infant's lesion
No. swabbed	12	11	11	12
No. of coagulase-positive swabs	2	6	9	11
Same phage-type as abscess in ..	2	5	9	11

TABLE IV—SKIN-SEPSIS RATES IN HOSPITAL B BEFORE AND AFTER INTRODUCTION OF CONTROL MEASURES

No. of	January–April		May–October	
Live births	232		402	
—	No.	% live births	No.	% live births
Skin lesions swabbed	26	11	25	6
Coagulase-positive swabs	23	10	15	3·5
80/81 strain	13	6	3	0·7

Breast milk.—The "abscess strain" of staphylococcus was isolated from the breast milk in almost half the cases examined. 32 samples of breast milk were also obtained from 16 mothers in Hospital B who showed no sign of infection, but whose infant carried or was infected with staphylococci. 7 mothers carried the same strain in the milk as that isolated previously from the infant; thus, as in the abscess series, almost half the patients yielded infected milk. In 33 cases examined in Hospital B we have not found staphylococci in the breast milk of a woman whose child had a negative nasal swab.

Infant Sepsis

In the four months before the introduction of the new nursing techniques in Hospital B, at least 11% (some lesions were not swabbed) of the 232 infants born alive had staphylococcal skin lesions. 13 swabs grew staphylococci of phage-type 80/81. In the six months after the application of the new techniques the proportion of infants with staphylococcal skin lesions fell to 6% of 402 live births, organisms of phage-type 80/81 being found in only 3 infants. The details of the infant-sepsis rate during the two periods are set out in table IV.

Table V analyses the type of lesion and the results of bacteriological examination. Only 6 out of 20 "sticky eyes" and 4 out of 12 pustules produced coagulase-positive staphylococci, whereas all cases of paronychia were caused by this organism.

The nose and lesion of an infant were swabbed at the same time on 11 occasions; 5 of these pairs grew coagulase-positive staphylococci from both swabs, and in 4 the identical organism was present in both nose and lesion.

Umbilical sepsis.—No frank examples of umbilical sepsis were encountered during the period of this study. 14 umbilical swabs were examined for various reasons and when bacteriological culture was carried out it was found that in only 3 cases were coagulase-positive staphylococci present, while 3 others carried *Escherichia coli*. From the remaining 8 swabs either coagulase-negative staphylococci were obtained or there was no growth.

Nasal Carriage by Staff

The incidence of coagulase-positive staphylococci in the nose of staff personnel is shown in table VI. The variation in numbers of Hospital B staff swabbed is due to the inclusion of cleaning and domestic staff in the latter two surveys and to the presence of a new class of trainee nurses in September.

While the proportion carrying coagulase-positive staphylococci (positive carriers) varied from 22% to 48%, the proportion of penicillin-resistant staphylococci remained about 70%. Similar figures were obtained from the medical staff. The single carrier of type 80/81 (among the nursing staff) in September was a "persistent carrier", first identified in January as the probable source of the 80/81 strain in Hospital B nursery infections.

41 of the Hospital B staff (nursing, cleaning, and domestic) were present for both the May and September surveys. 20 of these were non-carriers on both occasions. 11 who were positive in May had become negative by September, while only 2 non-carriers in May were positive in September. 8 were positive on both occasions, 4 of them carrying the same or a closely related strain (as shown by phage-typing and sensitivity pattern) on both occasions.

TABLE V—TYPE OF LESION AND BACTERIOLOGICAL RESULTS (IN A SIX-MONTH PERIOD WITH 402 LIVE BIRTHS)

—	Lesion					
	"Sticky eyes"	Skin				Total skin
		Pustules	Blisters	Scabs	Paronychia	
No. swabbed	20	12	4	2	7	25
No. producing coagulase-positive staphylococci	6	4	3	2	7	16
No. producing coagulase-negative staphylococci	9	7	1	0	0	8
Other organisms	1	0	0	0	0	0
No growth	4	1	0	0	0	1

One pædiatrician who visited Hospital B weekly had exchanged a penicillin-sensitive strain that was untypable in May, for a highly resistant strain, phage-type 80/81 in September. This was almost certainly acquired from the children's ward of the hospital, where cases of staphylococcal empyema due to the phage-type 80/81 were under his care.

Nasal Carriage by Mothers and Infants

In Hospital B only 2 women of the 113 examined carried the 80/81 strain on admission, and 1 had lost it by the tenth day. The overall maternal carriage rate of coagulase-positive staphylococci was 30% to 36%, but in this group the incidence of penicillin-resistant strains was half that of the nurses or infants. The small group of 19 mothers in Hospital C gave a similar figure (30%). 41% of the 22 infants in Hospital C were carriers at the time

TABLE VI—NASAL CARRIAGE OF COAGULASE-POSITIVE STAPHYLOCOCCI

—	Source of swab		No. of swabs	No. coagulase-positive	% coagulase-positive	No. penicillin resistant	% penicillin resistant	No. of 80/81 strain
Hospital B	Staff (nurses only)	January	36	8	22	5	63	2
	Staff (nursing and cleaning)	May	46	22	48	15	68	4
	Staff (nursing and cleaning)	September	55	16	29	12	76	1
	Staff (medical)	May	8	3	38	2	—	0
	Staff (medical)	September	11	4	36	2	—	1
	Mothers (April, May, June)	1st day	113	34	30	16	47	2
		10th day	113	41	36	13	32	1
	Infants (April, May, June)	4th day	113	22	19	13	59	1
		10th day	113	39	34	29	74	2
Hospital C	Staff (nursing and cleaning)		21	6	22	4	19	1
	Mothers		19	6	32	4	21	0
	Infants		22	9	41	7	32	2
Hospital B	Dust and air (nurseries and theatre)		15	0	0	0	0	0
Hospital C	Dust and air (nurseries, wards, and theatre)		43	9	21	4	9	2

of examination, but since their ages varied from a few hours to fourteen days, this is a lower figure than would have been obtained by swabbing each of these infants in its second week of life.

Dust and Air

No coagulase-positive staphylococci were isolated from the samples taken from the nurseries and theatres in Hospital B, although much dust and a variety of organisms were obtained from various sources. In the older institution (Hospital C), however, 9 of 43 specimens were positive, 2 being identified as type 80/81 (table VI).

Discussion

Since the description in Australia, by Rountree and Freeman (1955), of a newly identified strain of staphylococcus, the phage-type 80 or 80/81, this strain has now been identified in over 40 epidemics in many parts of the world (Shaffer 1957). Since it was first identified in New Zealand as a phage 52A variant (Battersby and Stringer 1954) and subsequently typed (weakly) as 42E/7/73 (Beaven and Burry 1956), Shaffer (1957) has shown the identity of the type 80 or 80/81 with the Canadian strain V-81, and his 42B/47C/44A/52/80/81 strain in the U.S.A. This strain appears to show a predilection for maternity homes (Markham and Shott 1958).

The presence of a particular strain of staphylococci in maternity hospitals is an interesting and as yet unsolved problem. It does appear, however, that the type 80/81 and certain other strains of staphylococcus find the environment of a maternity home particularly well suited to their propagation. It has been suggested by Rountree and Freeman (1955) and Gillespie and Alder (1957) that this strain was of exceptional virulence, but in view of the frequency with which it occurred in minor lesions and the comparative rarity of severe complications, the property of " exceptional " virulence cannot be attributed to the organism seen here.

It is now accepted (Rountree et al. 1956) that breast abscesses during lactation are almost invariably due to staphylococci acquired in the maternity home, often from an infected infant, and our survey confirms these findings. Thus the control of an epidemic of breast abscesses involves the control of neonatal infection in the maternity home. Further, since asymptomatic carriage of staphylococci seems to be almost as dangerous (both for mother and infant) as frank sepsis, nasal carriage of staphylococci by the infants is of importance. It was gratifying to find that the nasal carriage of all coagulase-positive staphylococci by the infants was reduced to under 40% by the measures described. This figure compares most favourably with those quoted by Gairdner (1954) and others.

Duncan and Walker (1942) showed that staphylococci were common in maternal milk, and they found that these organisms were derived from the infant's nose or throat (which was colonised first) and not from the mother's nose. It appeared to us that the importance of breast milk in the transmission of staphylococci had not been fully appreciated, and this view has been confirmed independently by Wysham (1957).

In a maternity home, where dust and aerial contamination is common, a woman with cracked nipples appears to be at a considerable risk regardless of the state of her infant. This may well have been the explanation of 4 of the Hospital C patients, none of whom carried staphylococci in their milk, but who, 2 or 3 at a time, had all been in one four-bed ward. Milk may be much more important as a vector in a unit such as Hospital B where cleaning is effective and dust and aerial contamination in the wards slight or absent. Under such conditions, the train of events in the production of a breast abscess may be: introduction by a staff carrier; transfer to infant by hand or aerial spread; transfer from infant to infant in the nursery by hand or air; from infant to maternal milk, whence, in the presence of engorgement (of all or a part of the breast) or cracked nipples, an abscess develops.

The technique of antenatal expression of colostrum advocated by Waller (1946) is recommended to all women attending the antenatal clinic of Hospital B, and only 3 out of 24 patients with breast abscesses had practised this exercise. The benefits of this expression may not only be easier and more effective lactation but also, through improved function of the duct system of the breast, at least some degree of protection against abscess formation. The periodical examination of samples of bulk breast milk from a maternity home may be a valuable screening procedure since, if a sample produces coagulase-positive staphylococci, a search may be made for the woman responsible. It has also been valuable to culture the milk of the patient in any case of pyrexia of unknown origin in the puerperium.

Williams (1956) described three types of neonatal sepsis: staphylococcal infections of one phage-type from a single source (such as a nurse with boils); infections due to staphylococci which are of one type but are widespread in the environment; and infections by several phage-types which are similar to those carried by the nurses. This last group he considers, is due to inadequate techniques. It seems that these are not mutually exclusive and that the first, if not rapidly controlled, would lead to the second. The experience in Hospital B corresponds closely to Williams' first group, since the sudden appearance of an epidemic of breast abscesses suggested that a new organism especially well adapted for survival in a maternity hospital had been introduced. When this possibility was examined in Hospital B, it was found that one of the nursing staff not only carried organisms of the 80/81 strain in the nose but had suffered from recurrent boils caused by the same organism; and, since McDonald and Timbury (1957) have suggested that staphylococci from subacute infections are more pathogenic than those from a healthy mucous membrane, this may explain the sudden increase in infections. The removal of this nurse from duty was the beginning of the end of this particular epidemic, and in the following six months there was only one breast abscess among the Hospital B patients, and this was due to a different phage-type.

In contrast, Hospital C, the older building, which was more difficult to clean adequately, had an outbreak of the second type with contamination of dust and air.

In Hospital B, the eradication of staff carriers of the epidemic strain, plus the introduction of new nursery techniques to reduce cross-infection, was effective in controlling the outbreak due to the 80/81 strain and also in reducing the " residual " sepsis of Williams' third group.

Most infants born in Hospital B were seen by one of us (J. A. M.) at a follow-up clinic, at the age of six to eight weeks, and, while some who had been free of infection in Hospital B had developed pustules or conjunctivitis after discharge, almost all infants appeared to clear up spontaneously by the age of two months, regardless of treatment.

During the ten months of the survey only 1 infant had to be transferred from Hospital B to the children's ward of the general hospital. This child progressed from crops of pustules to a massive subcutaneous abscess of the forearm. No case of staphylococcal pyopneumothorax was seen from Hospital B, though 9 cases (with 4 deaths) were admitted to the children's ward of the hospital during the period. These cases, which show the danger of staphylococcal complications, closely resemble those described by Beaven and Burry (1955) and Briggs (1957).

Our methods of treatment and control correspond closely with those advocated in the monograph of the

Australian National Health and Medical Research Council (Rountree et al. 1956) (which contains an extensive bibliography), two points from which have been adopted here: the use of 2% gentian violet in 70% alcohol for local application to pustules and the discontinuance of routine eye-drops at birth.

It seems that there must be a minimum level of sepsis of the third type, since it is not practicable, nor are we convinced of the advisability of treating all nasal carriers of coagulase-positive staphylococci, as it has been suggested (Rountree and Barbour 1951) that carriage of one strain (possibly penicillin-sensitive) may protect against the acquisition of a more virulent or more resistant strain, and it became apparent, with the decrease in amount of sepsis in Hospital B after the adoption of the new techniques, that without treatment 27% of the staff present in both May and September ceased to carry coagulase-positive strains. This exceeds the "spontaneous reversion-rate" among transient carriers which has been variously assessed between 1% (Gould 1955) and 15% (Rountree and Barbour 1951). Persistence of nasal carriage has been assessed at 15%–30% for different groups, and our figure of 19% is similar to that of Hutchison et al. (1957) and others. Half of these nurses persisted in carrying a given strain. 48% of the 41 nurses were negative on both occasions, but their progress was not followed in detail during the intervening months.

The importance of umbilical carriage has been emphasised by Jellard (1957), who showed that 70% of infants had contaminated cords by the fourth day of life. This figure was halved by the regular application of triple dye to the cord. Our small series of umbilical swabs (only 3 out of 14 were positive) seems to correspond to Jellard's treated group and we feel that, provided adequate care is given to the umbilicus, it need not become an important source of organisms.

It thus seems probable that the epidemic in Hospital A began with the nurse who had crops of boils. In the nursery, once infection was introduced, the presence of staphylococci was perpetuated by transfer from cot to cot by hand or aerial transfer, thence to the mother's breast via the milk. In Hospital C, however, dust may have played a more important part in cross-infection between women in the same ward.

This sequence provides a basis for methods of control, which are thus designed to prevent the introduction of fresh infection by the epidemic strain, and to eradicate the nursery "reservoir" of infection, by prevention of transfer from staff to infant and from infant to infant.

Summary

A further outbreak of staphylococcal infection in two maternity units produced 27 maternal breast abscesses. The staphylococcal strain responsible was the phage-type 80/81.

The infant was found to be a frequent source of maternal infection and was usually contaminated either directly, or by aerial transmission, from staff carriers. The transfer of staphylococci from the infant to the maternal breast milk is important in the pathogenesis of breast abscess.

Neonatal sepsis rates were assessed before and after the introduction of control measures. Maternal and infant nasal carrier-rates over a three months' period (in the absence of severe sepsis) were investigated. The staff carrier-rates were assessed on three occasions in ten months.

It is concluded that a nursery may be "seeded" with staphylococci from a nasal carrier among the staff, and that a nursery "reservoir" of staphylococci may persist by hand or air transfer from infant to infant. An infant carrying staphylococci may transmit the organism to the mother's breast, either directly via a cracked nipple, or by inoculation of the breast milk, and a breast abscess may then develop.

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ACUTE LEUKÆMIA IN AN INFANT
FOLLOWING EXCESSIVE INTRAUTERINE IRRADIATION

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LEUKÆMIA seldom occurs below the age of one, and is then peculiarly intractable. In reporting such a case here, our main purpose is to discuss its ætiology. After the infant's death the suspicion arose that its mother might have been given an unusually heavy dose of diagnostic X rays during pregnancy, and that this had something to do with the leukæmia (Stewart et. al. 1956). Calculations and experiment confirmed that the child must have received a large quantity of X rays during the latter part of intrauterine life. They also showed how this quantity could have been much reduced.

Case-report

At the age of 10 months the baby was sent to our hospital with a pustular rash. For about six weeks she had bruised readily and for two weeks she had been very pale.

She was a fourth child, and, though the three siblings were normal, there had been some toxæmia in each pregnancy, all the fœtuses being very large. The mother was very obese (238 lb.), and in this fourth pregnancy, because of doubt about the position of the fœtus, three X-ray examinations were undertaken, with a total of five exposures of which three were anteroposterior, and two were lateral projections. The fœtus initially lay as a breech and then transversely. After an external version, surgical induction was performed at an estimated date of 37 weeks. Labour was quick and uncomplicated, and the infant was apparently normal, weighing 9 lb. 12 oz. She developed much as her siblings had done, and was bright and cheerful, though always a rather capricious feeder. She sat up at 7 months, and at 10 months had two teeth.

FŒTAL EXPOSURES

Date	View	Kv	mAs	Focal skin distance	Skin dose	Central fœtus depth	Dose to centre of fœtus
Nov. 15	A.P. ..	78	550	19 in.	53·2r	4·0 in.	6.15r
,, 15	Lat. L. to R.	81	600	20 in.	55·9r	3·5 in.	8·4r
,, 28	A.P. ..	76	500	19 in.	46·0r	4.0in.	5·3r
Dec. 7	A.P. ..	76	500	19 in.	46·0r	4·5 in.	4·1r
,, 7	Lat. L. to R.	76	500	22 in.	34·2r	6·0 in.	1·4r
Total	..	..	..	..	..	..	25·35r

Dose to centre of fœtal skull: 57·3r.
Dose to mean centre of fœtal tibiæ: 23·6r.
Integral dose to whole fœtal body: app. 0·1 mega-gram-röntgen.
A.P. = anteroposterior. Lat. = lateral. L. to R. = left to right.

When she was admitted, the lymph-nodes on both sides of the neck were slightly enlarged, the spleen could be felt 2 in., and the liver $1^1/_2$ in. below the costal margin. The blood contained only 3·5 g. hæmoglobin per 100 ml., and the white-cell count was 41,000 per c.mm. rising to 70,000 (1400 neutrophil polymorphs, 14,700 lymphocytes, 700 monocytes, 5600 myelocytes, and 47,600 blast cells with very primitive nuclei and huge nucleoli); platelets 36,000 per c.mm. The findings resembled those of the "myelomonocytic (Naegeli)" type of acute granulocytic leukæmia usually seen in much older patients.

The baby was transfused and given prednisone 20 mg. daily, without improvement. She developed a staphylococcal septicæmia and died on the 11th hospital day. Postmortem examination confirmed the diagnosis of acute granulocytic leukæmia and staphylococcal pyæmia.

The Radiation Exposures

The mother had been radiographed for fœtal presentation on Nov. 15, Nov. 28, and Dec. 7 (the day before delivery). Because of her obesity, the exposure factors were much greater than is usual. For the anteroposterior examinations she was supine, and for both laterals she lay on her right side. No added filter was used for any of the exposures.

The table shows the focal distances and the location of the various parts of the fœtus, as estimated from an analysis of the films, making allowance for radiographic magnification and the sag of the fœtal region during the lateral exposures. There must necessarily be some inaccuracy in such estimates, but we believe that these are approximately correct. It is worth noting that had the first lateral exposure (Nov. 15) been given with the patient lying on her left side instead of the right it would have contributed only 1·4r instead of 8·4r.

The röntgen exposure doses were measured with a calibrated Victoreen r-meter. An average back scatter factor of 1·26 was found experimentally with a pressed wood phantom and a flat plate ionisation chamber. The chamber was also used to determine the percentage depth dose in pressed wood, and the values obtained were used in calculating the röntgen exposure received at the centre of the fœtus.

In this analysis we have chosen to estimate the radiation exposure to the centre of the fœtal skeleton. There appear to be three main methods of stating the radiation exposure for correlation with leukæmia—namely (*a*) the average dose to the fœtus (Bewley et al. 1957), (*b*) the integral dose to the whole body (Wheatley and Geilinger 1957) and (*c*) the dose to the centre of the fœtal skeleton (Clayton et al. 1957). Any assessment of the average dose to the fœtus is difficult, and so is the application to the fœtal body of the method for estimating the integral dose. The calculation of the dose to the centre of the fœtal skeleton is simpler and more accurate. However, we have attempted a very rough estimate of the integral dose, and we include it to indicate the order of its magnitude. We also add estimates of the dose received by other parts of the fœtal skeleton.

Discussion

In older children leukæmia is almost exclusively lymphocytic, but in the very young it is commonly granulocytic. In the very rare cases of congenital leukæmia, too, there is a great predominance of granulocytic forms—e.g., 28 granulocytic to 4 lymphocytic (Reimann et al. 1955). It appears permissible to group together congenital leukæmias and those occurring up to the age of perhaps one year, since they tend to show similar and distinctive clinical features (especially a hyperacute course) and hæmatological findings. The question arises whether their ætiology may be equally distinctive.

In 1956 Stewart et al. published a preliminary report which showed that in a group of children dying from leukæmia and other malignant diseases diagnostic irradiation of the mother's abdomen during pregnancy had been significantly more frequent than in a control group. These findings suggested that leukæmia in children could sometimes be caused by diagnostic irradiation of the maternal pelvis during pregnancy. In criticism of this conclusion (Rabinowitch 1956, 1957, Reid 1957, Jackson 1958, Parlee 1958) the most important argument has been that the dose of X rays received by the fœtus during such exposures must have been far too small to cause leukæmia. Thus the average dose of 1–2·5r (Rabinowitch) is insignificant when compared with the doses administered to patients with ankylosing spondylitis (Court-Brown and Doll 1957) or to those inhabitants of Hiroshima and Nagasaki who later developed leukæmia. Authors who have been inclined to accept the leukæmogenic action of diagnostic irradiation in pregnancy have concluded that "a dose of 2500mr doubles the leukæmia rate" (Hodges 1958).

Our case shows that, whatever the *average* dose given to pregnant women and their fœtuses, it is possible, using standard techniques and only those exposures which are regarded as essential for the safe conduct of a difficult obstetrical case, to administer very much higher doses than have yet been mentioned in the discussion of Stewart's figures. Indeed, the quantity of radiation received by the fœtus in our case (a mean of about 25r) was about the same as that probably received by the majority of those inhabitants of Hiroshima and Nagasaki who survived the atomic bombing at distances of 1500–2000 metres from the hypocentre (mean 50 rem)—a dose great enough to raise the leukæmia incidence among them by 200–300% compared with people in the "control" zone at more than 2000 metres from the hypocentre (Lewis 1957). Hence, to account for leukæmia in cases resembling ours, it is unnecessary to invoke the possibly very high sensitivity of the fœtal hæmopoietic system to the effects of ionising radiation. Again, accepting with reservations the estimates of the integral body dose, that received by irradiated spondylitics is (allowing for the difference in body-weight) in most cases only six to twenty times as large as that received by our fœtus, and not several hundred times, as deduced by Rabinowitch.

If irradiation caused the leukæmia in our patient, the latent period between irradiation and the onset of the leukæmia was much shorter than that in Japan, which was upwards of 3 years (Moloney and Lange 1954a), or in the British series of irradiated spondylitics (2–5 years, Court-Brown and Doll 1957). But since we were dealing with a very young infant, this short latency does not rule out a causal relationship. It may be significant that the leukæmia was granulocytic; for, except in Simpson et al. (1956) cases of lymphocytic leukæmia following irradiation of the thymus in childhood, nearly all reported post-irradiation leukæmias have been granulocytic—either acute or chronic (Court-Brown and Doll 1957, Moloney and Lange 1954b). It seems advisable to analyse future cases of granulocytic leukæmia in infancy ("congenital" and "acquired") with particular care

as regards exposure to radiation; and to ascertain whether their history of exposure differs from that of the predominantly lymphocytic group of leukæmias in later childhood. Possibly the higher leukæmia incidence found by Stewart et al. may be accounted for chiefly by "exceptional" cases like ours.

Our patient received during fœtal life a dose of radiation such as has materially increased the leukæmia-rate in an adult population. Soon after this infant's mother was examined radiologically, and well before her infant's admission, the technique for obstetrical exposure at our hospital was altered to reduce the amount of radiation received both by mother and fœtus. This has been achieved, without any appreciable alteration in the quality of films, by the following means:

(1) Additional tube filtration of 2 mm. of aluminium.
(2) The use of high-speed screens.
(3) Doubling the development time of the film.
(4) Increasing the anode film distance in erect lateral films of the pelvis from 40 in. to 60 in.
(5) The use of high kilovoltage techniques.

These modifications have resulted in a striking reduction in the X-ray dosage necessary to produce diagnostic films. For example if the examinations on our patient, a 17-stone woman, were performed at the present time, the dose to the centre of the fœtus would be approximately 1·9r, or only 8% of that actually received. It would be much lower still in the average obstetric case which has been so widely discussed of late.

Summary

A 10-month old infant died from acute granulocytic leukæmia.

The mother had had three X-ray examinations (five exposures) during late pregnancy. Since she was an exceptionally heavy woman, the dose given to her and received by the fœtus was exceptionally large and lay within the range known to be potentially leukæmogenic in adults.

Modifications in the technique of radiography which have since been introduced would have diminished the dose received by the fœtus by 92%.

The patient reported upon was under the care of Dr. J. F. Landreth, whose permission to publish her record is gratefully acknowledged.

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Preliminary Communication

SCREW-IMPLANTATION OF THE PITUITARY WITH YTTRIUM-90

COMPLETE necrosis of the pituitary gland can be achieved by implanting two 6 mC rods of yttrium-90 into the sella turcica through twin cannulas inserted transnasally (one through either nostril) under radiological control, and this method of treatment may benefit patients with advanced mammary cancer.[1] Consistent and trouble-free destruction of the gland depends primarily on placing the two sources of radiation so that one lies in the centre of each half of the gland. A disadvantage of our previous method of implantation was that the rods were sometimes deflected into the space between the gland and the wall of the sella turcica, with the result that irradiation of the gland was incomplete. In addition, troublesome rhinorrhœa occurred in ten of the fifty-four patients treated. This was believed to be due to radiation necrosis of the diaphragma sellæ caused by faulty placing of the rods.

A modified technique has therefore been developed, for use with an image amplifier, to fix the rods in the optimum position. In this new method the holes in the anterior wall of the sella, through which the rods have been inserted, are plugged, providing an added protection against leakage of cerebrospinal fluid.

A cylindrical rod of yttrium oxide (5 × 2 mm.; 68 mg.)* is encased in a very thin sharp-pointed nylon sheath in which it is held by a small nylon plug. After activation in the Harwell pile, BEPO, this unit is fitted into one end of a stainless steel self-tapping orthopædic screw (Sherman screw size 6, $^5/_{32}$ in. diameter) † 0·5 in. long. This end has been drilled to accommodate the nylon-encased rod and the other end has been turned down and screwed with a 6 BA die (fig. 1). This portion of the screw accommodates a similarly threaded but loosely fitting screwdriver. When the threaded central rod of the screwdriver is tightened, the screw is firmly clamped, and it can be released only when the rod is loosened.

By the use of a director apparatus similar to that previously described,[2] twin 4 mm. cannulas are introduced, one through each nostril, until their ends lie against the outer wall of the pituitary fossa opposite the middle of the gland (fig. 2). Correct alignment of the cannulas is achieved by screening with the image amplifier. A diamond-steel drill is introduced down each cannula to cut a hole in the wall of the fossa equivalent to the

* Manufactured by Johnson, Matthey & Co., Ltd.
† Supplied by London Splint Company, Ltd.

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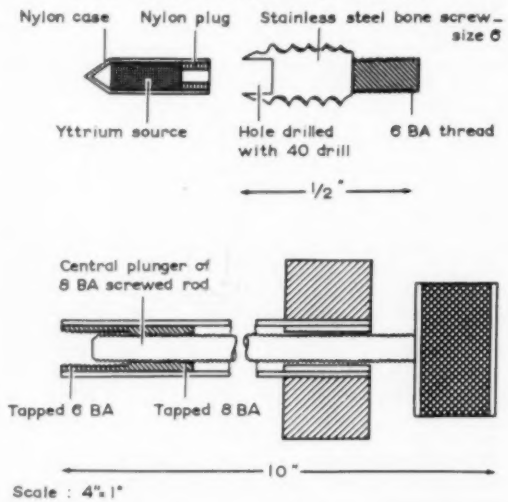

Fig. 1—Plan drawing of screw and screwdriver used for yttrium-90 implantation.

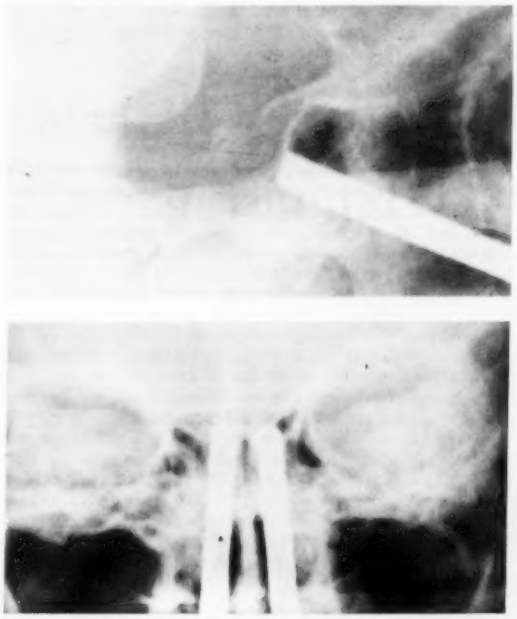

Fig. 2—Lateral and anteroposterior radiographs of skull. Twin cannulas introduced.

root diameter of the screw (0·106 in.), and the loaded screw, attached to the screwdriver, is passed along the cannula. The encased yttrium-90 passes through the drillhole and penetrates the pituitary gland, while the thread of the screw firmly grips the bone. Advancement of the source into a central position is easily accomplished by a few turns of the screw which fix it firmly in the required position (fig. 3). If the central threaded rod is first unscrewed the screwdriver can be removed without danger of withdrawing the yttrium-loaded screw from the bone (fig. 4).

Fourteen patients with metastatic mammary cancer, considered unfit for adrenalectomy, have been treated by introducing twin screws each loaded with 5–7 mC. yttrium-90 into the pituitary by this method. These patients all had advanced disease, and three died from progression of cancer within 8 days of pituitary screw-implantation. In all three the gland was entirely destroyed except for a single layer of subcapsular cells. That these would probably have failed to survive had the patients lived longer is suggested by the finding of complete destruction of the pituitary in a further patient who died 6 weeks after implantation. As in other forms of pituitary ablation, cortisone therapy is required to maintain life after screw-implantation with yttrium-90.

We believe that this revised method of radioactive implantation of the pituitary offers distinct advantages over our previous techniques [1 3 4] and ensures that the sources of yttrium-90 are placed with consistent accuracy.

We are grateful to Prof. C. F. W. Illingworth for allowing us to treat these patients in his unit, and to Mr. Angus Macdonald, of the Western Infirmary workshop, and Mr. Edward Fahey, of the Regional Physics Department, for technical assistance in constructing the screws and apparatus. The postmortem histological examination of the pituitaries was carried out by Dr. A. T. Sandison, of the University Department of Pathology, Western Infirmary.

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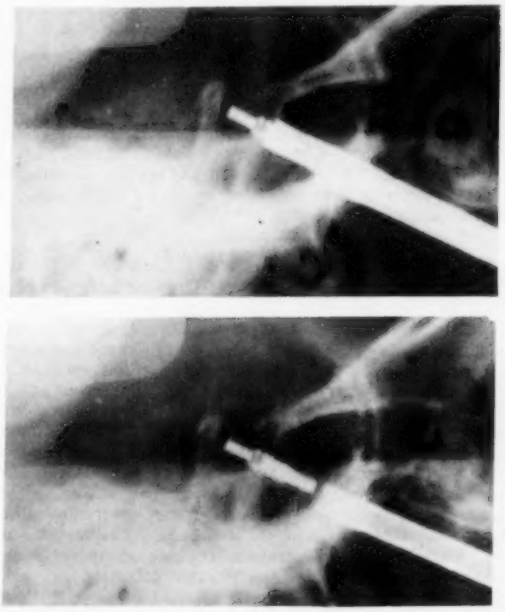


Fig. 3—Lateral radiographs of skull: *above*, screw being introduced through cannula; *below*, cannula withdrawn.

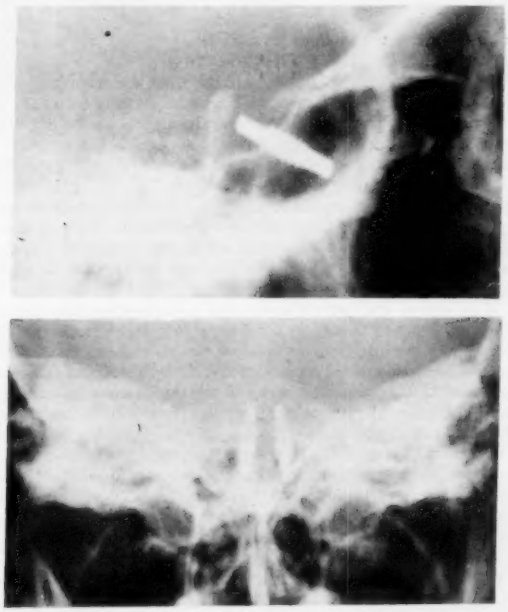


Fig. 4—Lateral and anteroposterior radiographs of skull—both screws in position.

Reviews of Books

The First Ten Years of the World Health Organization

Geneva: W.H.O. 1958. Pp. 538. To be had from H.M. Stationery Office. 20s. (paper backed), 25s. (cloth).

IT was natural and proper that the World Health Organisation should celebrate the first ten years of its existence with a commemorative volume. Apart from its own official reports and proceedings, no account of its work as a whole has been written since Goodman's more general and historical book on *International Health* was published in 1952.

Beginning with a brief summary of the evolution of international health since the first international Sanitary Conference in 1851, in which tribute is paid to its predecessor organisations, rather more space is given to the establishment of W.H.O. The bulk of the book is a plain factual description of its work under some twenty "functional" headings. There are 13 useful appendices giving tabular information on such matters as expert panels, staff, and finance, and many good illustrations and maps. It suffers from the defect of most official publications (except the Authorised Version of the Bible) in that neither by phrase, style, or presentation does it do much to help the reader to see the drama of achievement behind the official prose. This is perhaps unavoidable, but the absence of a bibliography and adequate references is less excusable. A spot check of the index also revealed some gaps. Nevertheless, this is an important publication and gives an accurate and adequate account of an expanding and successful ten years. Though hardly comparable to the conterminous first ten years of the National Health Service, they have been impressive, particularly when one remembers that for every £ that the whole world spends on W.H.O., we spend on the N.H.S. over £70.

The Strategy of Chemotherapy

8th Symposium of the Society for General Microbiology. Editors: S. T. COWAN and E. ROWATT. London: Cambridge University Press. 1958. Pp. 360. 35s.

THE chemotherapeutic agents and antibiotics in clinical use have not been designed in any rational scientific way. The failure of the logical approach to the chemotherapy of infections is largely due to lack of detailed information about the metabolism of both the invader and the host. In this symposium, organised by Dr. E. F. Gale, the 16 contributions review present-day knowledge of this subject and speculate on the lines along which future research might be usefully directed.

Prof. Robert Knox believes that it would be helpful to consider the strategy of chemotherapy at three different levels: the fundamental level, the level of the interactions between microorganisms and the individual host, and the epidemiological level. This useful concept is well developed in an article that integrates these different approaches. As he points out "it is often difficult for workers in one branch to understand the thoughts or even the language of workers in other branches".

The rest of the book is concerned with fundamental problems. It is a pity that there is only the briefest reference to the contribution made by bacterial genetics to our understanding of the mechanisms of drug resistance. Separate and detailed consideration is given to bacterial-cell-wall structure and the way chemotherapeutic agents may interfere with its integrity; to similarities and differences in energy-supplying reactions and protein synthesis in microorganisms and host cells; to the action of metal-binding agents; to the design of antimetabolites; to the selective inhibition of virus multiplication and lethal synthesis; and to chemotherapeutic synergy in its widest sense. The topics covered from the biochemical viewpoint are therefore numerous and varied; throughout, the importance of and the reasons for selective toxicity are stressed.

Full of well-documented information and useful references, the book will provide research-workers with plenty of ideas. Its title, however, is perhaps rather misleading. It does not deal with strategy at the clinical level, and readers who turn to it with that in mind may find evaluation of biochemical problems rather hard going.

Basic Cardiology

T. E. GUMPERT, M.B., F.R.C.P., physician, Royal Hospital, Sheffield, and Jessop Hospital for Women, Sheffield. Bristol: John Wright. 1958. Pp. 176. 25s.

Dr. Gumpert has arranged his valuable lectures on cardiology in a small monograph to bridge the gap between the specialised textbooks and the concentrated account found in more general books. It is full of common sense and very readable. Indeed, some readers may wonder whether common sense has not in places gone too far, at the cost of neglecting physiological and pathological principles, particularly in the chapter on congenital heart-disease. Cyanosis in pulmonary stenosis is attributed partly to the degree of pulmonary obstruction interfering with oxygenation; and the left-to-right shunt in atrial septal defect is thought to be due to gravity.

In a controversial chapter on systolic murmurs most innocent systolic murmurs are attributed to functional mitral regurgitation. It ends with a question: "When is a murmur not a murmur? A murmur is not a murmur when it is the only abnormality which can be found in the course of a full cardiological investigation in a patient who is entirely without symptoms." This may be dangerous teaching, for such a murmur might be a clue to a high output state, or to slight valve disease, unimportant in itself, but a possible root for bacterial endocarditis.

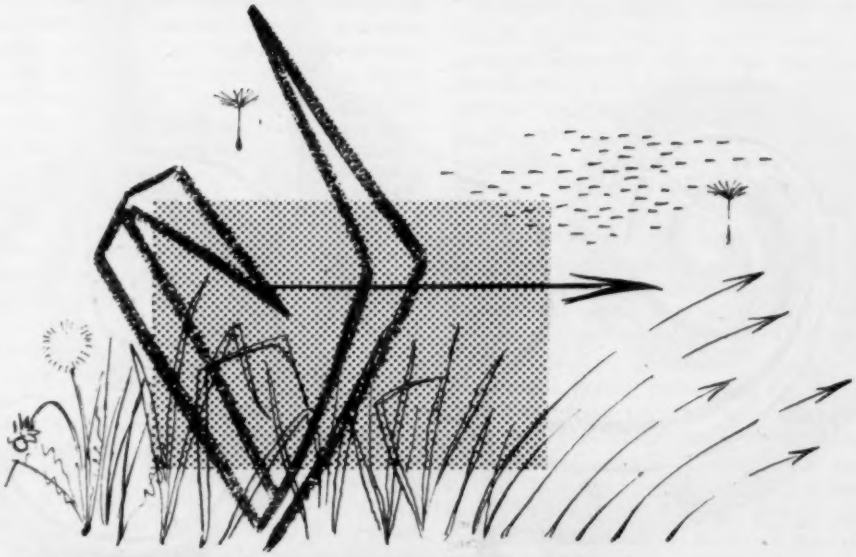
Psychobiology

A Science of Man. ADOLF MEYER M.D., late Henry Phipps professor of psychiatry, Johns Hopkins University. Compiled and edited by EUNICE E. WINTERS and ANNA MAE BOWERS. Springfield, Ill.: Charles C. Thomas. Oxford: Blackwell Scientific Publications. 1957. Pp. 257. 50s.

THE first Salmon memorial lecture was delivered by Adolf Meyer in April, 1932. He subsequently revised the lectures for publication but had not completed the task when he died. Miss Winters and Miss Bowers, who helped him in the preparation of this and other writings, undertook the heavy work of selecting, from the abundant material which he left, an adequate and telling exposition of his basic ideas. "Respect for the Meyerian language and style" was uppermost in their minds, and Meyer wrote a peculiarly involved English, full of abstract nouns, which did no justice to the vigour of his thought and to the wide experience on which his generalisations were founded. His old pupils will read these lectures with keen appreciation and a grateful recollection of what they owe to this great teacher; but it is doubtful whether many other readers will penetrate the thicket of words to find the wisdom hidden in them. The editors fortunately provide an appendix in which many of the terms used by Meyer are defined and their meaning is amplified.

The Heinemann Series on Sex Education (I. Parents' Privilege. II. A Story About You. III. What's Happening to Me? IV. Learning About Love. V. Sex Facts and Attitudes. London: Heinemann Medical Books. 1958. Each vol. 7s. 6d.).—These small books, each of 60–80 pages, do not really form a series, in the sense that one leads to the next, but are intended to give information and advice on sexual anatomy and physiology, and the problems of behaviour and conduct arising from sex, to parents of children and to young people of different ages. There is much overlapping. The information given by the authors, Marion O. Lerrigo and Helen Southard, is accurate and the advice sane and not over-emphatic. The familiar diagrams probably convey their meaning; other illustrations fall below the standard of the letterpress. The transatlantic origin of the books is apparent but not obtrusive (dating, petting, and necking have no inverted commas). How far early familiarity with pelvic anatomy and physiology will make for happier love-making, marriage, and parenthood is anyone's guess; but if they are wanted here are the facts.

In hay fever and perennial vasomotor rhinitis



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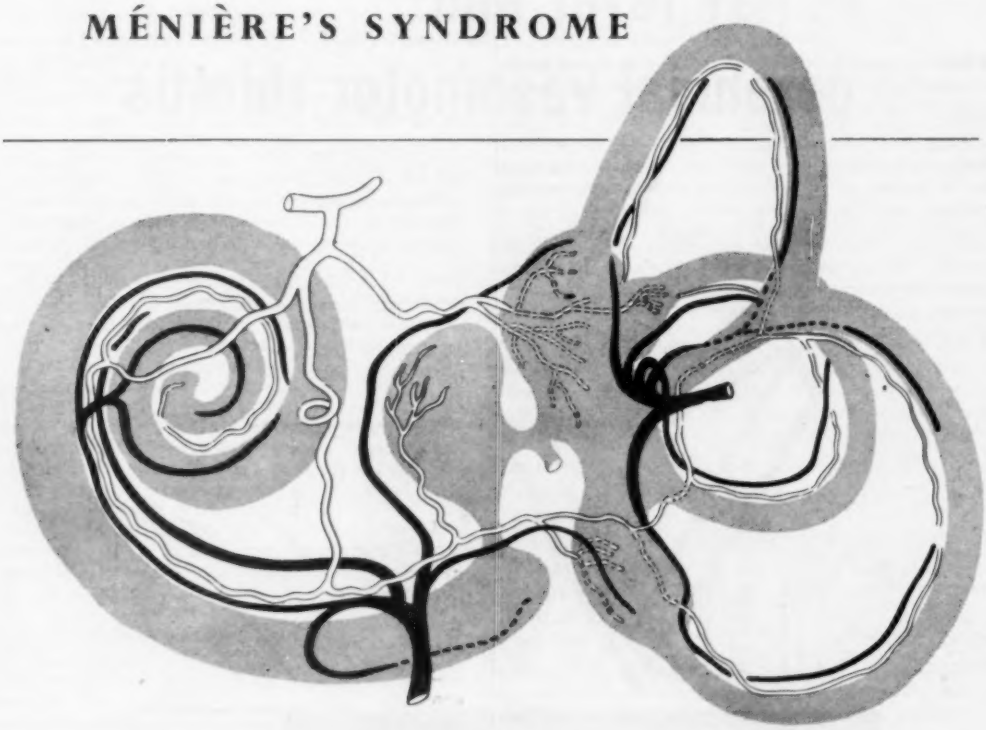

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THE LANCET
LONDON 26 JULY 1958

A Memorable Experiment

When RICHARD BRIGHT in 1836 called attention to the association between enlargement of the heart and chronic disease of the kidney, he was in effect asking the first of a series of questions which have taxed the resources of subsequent generations of students. For over a hundred years progress, depending as it did on observation, inference, and intuition, was inevitably slow; but it nevertheless became clear that, while high blood-pressure could derive from demonstrable kidney disease, it could also occur in its absence. The later recognition that this *essential* hypertension could cause renal damage did nothing to simplify the task of those who were patiently trying to bring order out of chaos. The year 1933 witnessed an abrupt increase in both the breadth and the tempo of research, for it was in that year that H. F. GOLDBLATT, in a historic experiment, showed that in animals simply constricting both renal arteries or one renal artery after excision of the opposite kidney produced a form of sustained hypertension which tallied in most essential respects with the disease in man. To mark the 25th anniversary of this experiment the University of Michigan organised a conference on Basic Mechanisms of Arterial Hypertension, at which Dr. GOLDBLATT was guest of honour. The proceedings of this conference have now been published in a special issue of *Circulation*.[1]

The first, and obvious, conclusion that accrued from GOLDBLATT's work was that the hypertension that arises in the course of structural disease of the kidney may be attributed to impedance of the circulation. The next followed quickly on the discovery that in some species, notably the rat,[2] permanent hypertension could be caused by constriction of only one renal artery. Such hypertension was found to be followed by the appearance in the opposite kidney of acute arterial necrosis and other lesions characteristic of malignant hypertension which had previously been regarded as inflammatory; and this strengthened the concept of malignant hypertension and simplified the classification of Bright's disease.[3] The suggestion that these lesions in the rat are due to spontaneous periarteritis nodosa [4] or pyelonephritis [5] overlooks the fact that they are invariably absent from the " clamped " kidney. Likewise the view that hypertension causes arterial necrosis only in the presence of renal excretory failure [5] is not consistent with clinical or experimental facts.[6] The work already mentioned also strengthened the clinical suspicion that unilateral renal disease might underlie some cases of hypertension in man; and it is now generally recognised that severe hypertension may occasionally arise in this way and may be dramatically cured, even in the malignant phase, by nephrectomy provided that the primary renal disease is strictly unilateral and that the condition is recognised before significant secondary hypertensive damage has developed in the opposite kidney. The detection of this unilateral renal disease is often extremely difficult; for it may take many different forms, from postoperative stenosis of a ureter [7] to pyelonephritis set up by habitual failure to empty the bladder more than once a day.[8]

Another early outcome of GOLDBLATT's experiment was the rediscovery in the normal kidney of the pressor substance renin,[9 10] which had lain buried in the literature for forty years. Renin was soon found to be an enzyme [9] producing the polypeptide hypertensin. Subsequent developments in chemical technique have made possible first the identification of the inert decapeptide,[11] then the elucidation of the structure of the active octapeptide,[12] and finally the synthesis of this highly active substance which contains as much as 50,000 pressor units per milligramme of nitrogen.[13 14] Whether overproduction of renin is responsible for Goldblatt hypertension is still not conclusively proven, but the evidence is very suggestive. The strongest evidence relates to the fact that renin is a protein and can be used to prepare a highly specific antibody. In animals with renal hypertension passive or active immunity conferred by this antirenin is accompanied by pronounced lowering of the blood-pressure.[15] Renin and more recently hypertensin [16] have also been demonstrated in the blood after constriction of the renal artery. Hypertension has been maintained for as long as seventeen days in rabbits by continuous intravenous injection of renin,[17] and when such an infusion is discontinued the hypertension persists for about as long as it does when a clip is removed from a renal artery [18]—that is, about four hours. A further point relates to the effect of pregnancy. During pregnancy in the normal animal the reactivity to renin is lowered,[19] and in rats with Goldblatt hypertension the blood-pressure falls progressively.[19 20] It has recently been shown that these two changes are closely related in time.[21] The reactivity to hypertensin is not altered in pregnancy.[22] The renin hypothesis will not, of course, account for the hypertension which follows total nephrectomy. Nor is it clear why the presence of normal kidney tissue tends to mitigate renal hypertension. On the other hand, no simple explanation of renoprival hypertension will explain why constricting one renal artery causes hypertension while excising one kidney

1. *Circulation*, 1958, **17**, pp. 640–840.
2. Wilson, C., Byrom, F. B. *Lancet*, 1939, *i*, 136.
3. Ellis, A. W. M. *ibid.* 1942, *i*, 1.
4. Goldblatt, H. F. *Circulation*, 1958, **17**, 645.
5. Goldblatt, H. F. *Physiol. Rev.* 1947, **27**, 120.
6. *Lancet*, 1958, *i*, 1109.
7. Marshall, F. C., Zervas, N., Olszewski, J. *Canad. med. Ass. J.* 1957, **76**, 576.
8. Nesbit, R. M. *Circulation*, 1958, **17**, 695.
9. Braun-Menendez, E., Fasciolo, J. C., Leloir, L. F., Munoz, J. M. *J. Physiol.* 1940, **98**, 283.
10. Page, I. H., Helmer, O. M. *J. exp. Med.* 1940, **71**, 29.
11. Elliott, D. F., Peart, W. S. *Nature, Lond.* 1956, **177**, 527.
12. Skeggs, L. T., Lentz, K. E., Kahn, J. R., Shumway, N. P., Woods, K. J. *J. exp. Med.* 1956, **104**, 193.
13. Rittel, W., Iselin, B., Kappeler, H., Riniker, B., Schwyzer, R. *Helv. chim. Acta*, 1957, **40**, 614.
14. Bumpus, F. M., Schwarz, H., Page, I. H. *Circulation*, 1958, **17**, 664.
15. Wakerlin, G. C. *ibid.* p. 653.
16. Skeggs, L. T., Kahn, J. R. *ibid.* p. 659.
17. Blacket, R. B., Depoorter, A., Pickering, G. W., Sellers, A. M., Wilson, G. M. *Clin. Sci.* 1950, **9**, 223.
18. Byrom, F. B., Dodson, L. F. *ibid.* 1949, **8**, 1.
19. Harrison, T. R., Grollman, A., Williams, J. R. *Amer. J. Physiol.* 1940, **128**, 716.
20. Wilson, C., Byrom, F. B. *Quart. J. Med.* 1941, **10**, 65.
21. Mackaness, G. B., Dodson, L. F. *Brit. J. exp. Path.* 1957, **38**, 628.
22. Dodson, L. F. *ibid.* p. 635.

does not. On the whole the prevailing opinion is that renal and renoprival hypertension are not directly related to one another.

To turn to a more fundamental question: Is essential hypertension a form of renal hypertension? GOLDBLATT's experiment was designed to test the hypothesis that the structural arterial changes observed at necropsy were not the result but the cause of the hypertension, and he has always maintained that his results provide general support for the hypothesis. Renal and essential hypertension resemble one another very closely in many respects, as GOLDBLATT points out [4]; and this certainly suggests that a common mechanism may be at work. Moreover, there is recent evidence that the hypertensin content of human blood is raised slightly in benign hypertension and very greatly in malignant hypertension.[16] Nevertheless there is singularly little evidence either from biopsy or postmortem material that mild or early essential hypertension is attended by structural disease of the renal arteries. Almost all workers therefore regard the arterial lesions observed at necropsy as secondary to the hypertension, and hold that any primary narrowing of the arterial bed must be functional. The distinction is important, because while increased tone of the renal arterial tree is potentially reversible organic narrowing is certainly not.

If essential hypertension is in fact renal in origin—and conclusive evidence is still lacking—the most important outstanding problem will be to find out the cause or causes of the increase in renal arterial tone.

Metals and Plastics in Intraocular Surgery

OPHTHALMIC surgeons have been keenly exploring the potentialities of implanted inert materials, especially plastics—notably for the purpose of correcting refractive errors by means of intraocular artificial lenses. HAROLD RIDLEY, the first in this field, in 1951 described his method for overcoming the visual defect in cases of aphakia by means of an acrylic lens inserted behind the iris and in front of an intact posterior-lens capsule.[1 2] By 1953, however, it was evident that this technique had its limitations. The artificial lens had to be inserted at the same time as an extracapsular cataract extraction was performed so that there was no means of checking the aphakic correction before the implant was inserted; and furthermore patients in whom the posterior capsule had been divided or had been removed were not eligible. Perceiving the possibilities of this technique, other workers, including STRAMPELLI [3] in Italy, SCHRECK [4] in Germany, and BARRAQUER MONER [5] in Spain, evolved an implant placed in front of the iris and behind the cornea, with feet wedged in the anterior-chamber angles and carrying a central optical portion, the correction of which could be modified to suit the requirements of the individual case. An important advantage of the anterior-chamber implant is that it can, and indeed should, be inserted after cataract surgery has been completed, thus enabling the surgeon to minimise the operative trauma to the eye at each session. Trauma to the eye has been further reduced by the introduction of new methods of sterilising the implants. While polymethyl methacrylate (or "acrylic") is completely inert in the tissues, with the original method of sterilisation by cetrimide small quantities of this irritant were adsorbed by the implant, subsequently leaking out into and irritating the eye. Sterilisation by ultraviolet light is open to the objection that it degrades the parent chemical, producing an irritant monomer near the surface of the implant, which would have the same effect as cetrimide. FREDERICK RIDLEY [6] has devised a simple and effective method of sterilising acrylic implants with 10% sodium hydroxide.

Uniocular cataract and uniocular aphakia are by no means rare. The disability in such cases is considerable; unaided vision is usually less than 3/60, and the patient is denied binocular vision. In children especially, the useless eye will tend to converge or diverge, and an ugly squint combines with a functionless eye to give the patient a sense of inferiority which may produce serious psychological trauma. Attempts to use a normal eye with an aphakic one by means of spectacles fail because of aniseikonia amounting to about 30%. A contact lens for the aphakic eye will reduce the disparity in image size to about 10%, but many patients cannot tolerate even this amount of aniseikonia. An interior-chamber implant reduces the figure to about 3–5%, which is tolerable.

At this year's Oxford Ophthalmological Congress, CHOYCE [7] described 60 cases of uniocular aphakia treated with acrylic anterior-chamber implants. He stressed that cataract surgery must be completed at least six weeks before implantation is undertaken. In most of CHOYCE's cases binocular vision was restored and in the remainder alternating suppression developed; accordingly diplopia was not experienced even by patients who had previously had diplopia with a contact lens. About a third of his cases had resulted from trauma, and the length of time which had elapsed since the injury was of no consequence; 6/6 vision was restored to some patients as long as fifty years after injury had caused a cataract. If the injury had occurred in early childhood amblyopia ex anopsia was inevitable, and limited the visual result; but patients appreciated the restoration of even slight unaided vision to what they had come to regard as a useless eye. Another third of CHOYCE's cases were of uniocular senile cataract in patients over 50 years of age, and after operation these too had the use of the two eyes together, instead of having to decide which eye to use. The remaining patients had either heterochromic cyclitis (all did well) or congenital uniocular cataract (some did well). It is only two years since the first implantation in this series, and it remains to be seen whether CHOYCE's results stand the test of time and are confirmed by other surgeons; but it seems likely that the problem of the patient with uniocular aphakia who cannot tolerate a contact lens has been solved.

Theoretically, anterior-chamber implants can be put to other uses—for example, the correction of high

1. Ridley, H. *Trans. ophthal. Soc. U.K.* 1951, **71**, 617.
2. Ridley, H. *St. Thomas's Hosp. Rep.* 1951, **7**, 12.
3. Strampelli, B. *Ann. oftal clin. Ocul.* 1954, **80**, 75.
4. Schreck, E. *Ber. dtsch. ophth. Ges.* 1955, **59**, 212.
5. Barraquer Moner, J. *Estud. inform. Oftal., Barcelona*, 1954, chapt. 15, p. 6.
6. Ridley, F. *Brit. J. Ophthal.* 1957, **41**, 359.
7. Choyce, D. P. *Trans. ophthal. Soc. U.K.* (in the press).

myopia and other refractive errors in phakic eyes. An opaque implant could be used to enforce occlusion of the good eye in a squinting child who would not tolerate ordinary methods of occlusion—and, after all, removal of these implants is simple. But merely opening the eye, let alone inserting so large a foreign body, must substantially increase the chances of the lens becoming cataractous; and at present there is no justification for inserting anterior-chamber implants into eyes which retain their own crystalline lenses. In cases of glaucoma, fistulising operations are usually successful in White patients. In the Negro they almost always fail, and much work has been done, especially by STONE et al.[8] in the U.S.A., on the use of polyethylene wicks and tubes and of tantalum wire. Efforts to replace vitreous by non-living materials have not so far been successful; transfer of human vitreous seems to offer the best prospect of success at present.[9-11]

The possibility of burying implants incompletely within the eyeball has been closely studied in rabbits by STONE et al.[12] in their search for an artificial cornea. Edge-to-edge union between cornea and acrylic cannot be induced; but if the cornea is split from limbus to limbus, just superficial to Descemet's membrane, an acrylic disc can be slid into this interlamellar space. These discs are well tolerated; later a smaller disc of overlying cornea can be removed by trephining, and still later a similar posterior disc removed via the anterior chamber. Such an opening will remain patent until the natural death of the animal. This ingenious technique provides an opportunity to study the reaction of the corneal cells to incompletely buried acrylic; but clinically it is not likely to replace the use of human donor material for cases requiring conventional lamellar or full-thickness keratoplasties. Nevertheless TUDOR THOMAS[13] has described a penetrating acrylic implant retained in place by an overlying lamellar corneal graft, and has by this means been able to help patients whose eye condition was extremely unfavourable for ordinary methods of corneal transplantation.

What Hospitals for Children?

Professor ILLINGWORTH's article this week shows once more how much care and thought are needed if the child in hospital is to be treated as he should be. Can anyone reading it be satisfied with a system in which many children are still looked after by hospital doctors and nurses to whom pædiatrics is a sideline? Reacting not unreasonably from the trend towards making everything a specialty, some physicians and surgeons would defend their right to go on treating both old and young, even side by side; and of course it is true that skill with the one phase of life does not exclude skill with the other. But the child is not just a small adult; his management unquestionably requires both special study and special experience; and when he is seriously ill his survival may depend on treatment by a team which is fully accustomed to some technique peculiar to his age. (The treatment of œsophageal atresia in the newborn, described by Dr. HELLINGS and her colleagues on p. 182, is a case in point.) Whenever his disease is complex or difficult, the child will have a better chance if the doctor in charge of him is in a position to get help from surgeons, pathologists, radiologists, and other specialists who have given much attention to the pædiatric side of their specialty and have come to think in terms of children.

One essential, then, is a staff which, at all levels and in all departments, is (as the Royal College of Physicians [1] put it) "attuned to the special needs of the sick child"; and the other is a staff large enough to include all the necessary talents. Both these conditions can be fulfilled in a special children's hospital, or in a big children's block forming part of a general hospital; but they are not fulfilled in most of the hospitals up and down the country to which so many children are admitted. From the medical standpoint, only the large pædiatric unit can be fully efficient; and, if there is a surplus of children's beds, it is the small units in general hospitals that should be eliminated—not the children's hospitals. Some of the latter, though they appear relatively small and inconvenient to the administrator, are relatively large and convenient for the children; and until a hospital authority can provide something equally large and convenient, *for children*, as part of a general hospital, it should leave them alone—or try to strengthen them.

As things are today, pædiatricians who have beds in both kinds of hospital not uncommonly transfer patients from the general hospital (sometimes a teaching one) to the children's hospital. They do this because, for a difficult case, they regard the children's hospital as better—better perhaps for consultation, better for investigation, or better for treatment. In a hospital treating children only, all the departments are adapted specifically to their needs. For instance, whereas the laboratory of a general hospital might ask for 5 ml. of blood from a vein, in a children's hospital the investigation would be done on 0·5 ml. of blood from a heel prick. Again, radiography of the lungs in a general hospital often produces a useless result, the wriggling baby being askew and the film lacking definition. (All too often, moreover, the whole baby is unnecessarily exposed to X rays.) As a rule, the films produced in a children's hospital, by those who are used to handling the very young, are much superior. For treatment, the children's hospital will have teams for managing neonatal obstruction, acute gastro-enteritis, metabolic disturbances, and the many other emergencies so difficult to cope with in the absence of an experienced team.

Even the everyday nursing of children demands technique and methods quite different from those used for adults; and, as the Royal College of Physicians emphasised, the training for it must be correspondingly specialised. In providing such training the children's

8. Stone, W. *New Engl. J. Med.* 1958, **258**, 486, 596.
9. Shafer, D. M. *N.Y. St. J. Med.* 1956, **56**, 3300.
10. Moffatt, P. McG. *Trans. ophthal. Soc. U.K.* 1957, **57**, 61.
11. Shapland, C. D. *ibid.* p. 69.
12. Stone, W., Jr., Herbert, E. *Amer. J. Ophthal.* 1953, **36**, 169; *ibid.* 1955, **39**, 185.
13. Thomas, J. W. T. *Trans. ophthal. Soc. U.K.* 1955, **55**, 473.

1. Children in Hospital. Report approved in comitia by the Royal College of Physicians of London and published in *The Lancet*, 1957, *i*, 926.

hospitals have their own kind of success. Thus a pædiatrician with beds in a teaching hospital, and also in the children's hospital attached to it, remarked that, though the parent undergraduate hospital attracts students of better education, the nursing care of children is very much better at the children's hospital—the explanation being that the young women there have taken up this work because they particularly want to do it. Both the children's hospitals and the larger pædiatric units in general hospitals could usefully give three months' training to many student nurses working for the general register, but only on condition that they have enough fully trained pædiatric nurses to give the teaching, and that the students are regarded for the most part as supernumeraries. For such students, doing their general training, a small and poorly staffed children's unit in a general hospital where the handling of children is unsatisfactory affords experience which is rather worse than useless.

The reasons why there is less demand on children's beds than in 1948 are: (1) the physical health of children has improved; (2) their illnesses are often shortened by more effective treatment; (3) probably more of them are treated at home; (4) additional children's wards have been opened in general hospitals; and (5) many children who would previously have gone into children's hospitals and general hospitals now go into fever hospitals—where there are always empty beds. We have no recent figures for the distribution of child patients, and in particular we do not know how many are in adult wards; but the returns of one regional board for a day in the autumn of 1955 showed that of the 1568 in children's wards 1082 were " medical ", and that only a little over half of these were under the care of a pædiatrician. Of the other 532 medical cases 243 were in fever hospitals. Because admission is easy, children nowadays go to such hospitals with pneumonia, meningitis, septicæmia, gastroenteritis, and rheumatism, not to mention a good many undiagnosed conditions ranging from cœliac disease to congenital hæmolytic anæmia. Sometimes, of course, the child thus admitted finds medical and nursing care which is fully equal to the occasion; and this journal, like others, has recorded fine work for children which has been done in fever hospitals—as also elsewhere—by physicians who would neither claim to be pædiatricians nor wish to limit themselves by such a title. On the other hand, many fever hospitals—including some of the large ones, have poor facilities (e.g., in pathology), insufficient nurses, and no arrangements for educating the children while they are in hospital or for following them up when they have left: and some of the smaller ones have no resident medical staff. To the hard-pressed family doctor, anxious about his young patient, such a hospital's willingness to accept the case has often been a godsend ; and very often, as we have said, excellent care has been given despite all the difficulties. But the development of fever hospitals as supplementary children's hospitals can scarcely be defended now that there are said to be too many children's beds and some of the children's hospitals are themselves faced with closure. Instead of making fever hospitals responsible for children with non-infectious diseases, it would be better to make children's hospitals and general hospitals responsible for fevers—equipping them with units for the purpose, as has been done in the U.S.A. and many Continental countries.

In the region we have mentioned, 28 of the hospitals which had children's beds (medical; surgical; ear, nose, and throat) had fewer than 15; and we do not believe that a number like this, or anything like it, permits the formation of a pædiatric group or environment capable of giving the varied yet specialised care that children so often require. If the treatment of sick children is to improve, the policy should be not only to discontinue the routine admission of children to adult wards but also to eliminate, progressively, the children's units which are too small to be pædiatrically viable. On the positive side, support should be given to the larger units—children's hospitals and big departments in general hospitals. The Ministry of Health would set the ball rolling in the right direction if it officially endorsed and made known to administrative bodies the report of the Royal College of Physicians committee,[1] on which it was represented. A circular to regional boards could emphasise:

1. The need to build up, in each region, a relatively small number of big pædiatric units, fully staffed and fully equipped —with special attention to any children's hospitals, from which will come much of the pædiatric staff of the future. As the college suggests, branch outpatient pædiatric departments can be based on these units.

2. The need to discontinue the use of fever hospitals for children not suffering from the so-called infectious fevers, to link the fever hospitals with pædiatric hospitals or units,[2] and to arrange eventually for the treatment of these fevers in isolation wards forming part of children's hospitals and general hospitals.

3. The need to stop indiscriminate admission of children to adult wards.

Where there are more children's beds than an area can use, the units to be closed should be those that are too small to give the special kind of care, the special skills, and the special knowledge which children require —and to which they are entitled no less than adults.

Poliomyelitis Vaccination

THE Government's programme of vaccination against poliomyelitis is to be extended from the present age-limit of 15 to 25; a wider range of hospital staff and their families are to be included; and a start is to be made with third injections of people already vaccinated twice. This was announced by Mr. DEREK WALKER-SMITH in the House of Commons on Monday. Those hitherto eligible for vaccination are children born in 1943-57, expectant mothers, general practitioners, and hospital and ambulance staffs and their families. At June 30 a total of 6,570,157 had registered, of whom 4,481,837 had received two doses and 856,388 one dose; 1,231,932 were awaiting vaccination. The registration-rate for children under 15 at June 30 was 53·6%. The number of doses needed to complete registrations was 3,320,252; and 3,766,651 doses were held by local health authorities. Of the new groups those aged 15-24 total some 6,250,000 and hospital staffs and families 500,000; and those eligible up to March 31, 1959, for a third injection may total 6,500,000. It is proposed to ask local health authorities to offer as soon as possible third injections to children vaccinated in 1956—about 200,000.

2. Ministry of Health circular R.H.B. (48) 1.

Annotations

THE PRINCESS LOUISE

THE Minister has at last said what he now thinks should be done with the Princess Louise (Kensington) Hospital for Children: it should be cut in half, so that the present staff have two wards for pædiatrics while St. Mary's Hospital have the other two for obstetrics and gynæcology. Let us hope that this judgment, like Solomon's, is intended merely to reveal the relative strength of the affections of the claimants; for otherwise it has few merits. True, the division, unlike that of Solomon's baby, is to be temporary; and a couple of years will give time for reflection. But after these years, unfortunately, the hospital, as a children's hospital, may be virtually dead. If we are right in the arguments of our preceding article, the Minister is wrong in reducing a children's hospital of 76 beds to a mixed hospital with less than 40 children's beds. If he thinks that there are too many such beds in the area, the correct policy is to eliminate one or more of the smaller units in general hospitals which cannot give children the full benefit of pædiatric knowledge and training.

The Princess Louise Hospital was built in 1928, at a cost of £75,000 raised mainly within the borough, to meet the needs of the rapidly developing and overcrowded area of North Kensington. In 1945 its board decided that, under a National Health Service, its security, wellbeing, and development would be best secured by joining a teaching hospital, and in 1946 it amalgamated with St. Mary's on the understanding (we are told) that it should retain its name and continue as a children's hospital. About the same time St. Mary's also amalgamated with the Paddington Green Children's Hospital, and ever since then they have had more pædiatric beds than they need for teaching, and fewer beds of other kinds.

Their first proposal in 1949 was to convert their smaller children's hospital (Paddington Green) into a hospital for adults; but this was strongly opposed in the neighbourhood, and since 1955 they have concentrated on the conversion of the Princess Louise, which is thought to be architecturally easier. This, too, aroused opposition, and in November, 1956, the Minister is said to have accepted a solution whereby St. Mary's should allow the Princess Louise to be transferred, as a children's hospital, to the North West Metropolitan Regional Hospital Board, accepting in exchange additional adult beds for teaching purposes in Paddington General or St. Charles' Hospitals. But St. Mary's refused to do this because they rightly wanted their teaching beds to be directly under their own control.

The Minister's new solution of the problem is to allow St. Mary's "to convert two wards at the Princess Louise Hospital for the temporary use of maternity patients pending the provision of the professorial unit [in obstetrics and gynæcology] at St. Mary's Hospital, and to defer a decision on the long term future of Princess Louise Hospital until that unit is nearing completion". He is "satisfied that it is practicable for those entitled to avail themselves of the benefit of the objects of the Princess Louise Hospital for Children to enjoy similar facilities in suitable neighbouring hospitals".

If the Princess Louise Hospital were consistently empty, while units in neighbouring hospitals were full, there would be a case for saying that it is no longer doing its work and can suitably be spared. But that does not seem to be so.

Because of the seasonal fluctuations in demand, bed-occupancy in children's hospitals over the twelve months is bound to be relatively low; and at the Princess Louise admissions were curtailed in 1955 and 1956 by poliomyelitis and throughout 1957 by a *Salmonella typhi-murium* infection. Even so, the following figures are not unsatisfactory:

	Inpatients	*Bed occupancy* %
1946	832	68
1947	939	63
1948	1088	70
1949	1020	75
1950	1211	78
1951	1427	69
1952	1656	71
1953	1758	80
1954	1807	76
1955	1363	75
1956	1726	73
1957	1290	58

Recent uncertainties have already weakened the staff because a number of consultant and other medical vacancies have not been filled; and of course this weakening would continue if the Minister's proposal were fulfilled. But the hospital remains, pædiatrically, in a stronger position than many smaller units. The general-purposes committee of the Kensington Borough Council, which is vigorously opposed to the proposal, refers as follows to grave illness treated in the hospital [1] last winter:

> "We . . . are convinced the Princess Louise Hospital, truncated by the threatened loss of two whole wards, cannot adequately meet the continuing and indeed growing needs of the child population of the area, still less cope with an epidemic such as the recent virulent and rapidly fatal chest complaint in infants known as bronchiolitis. This recent outbreak called for the use of every available cot and bed and at one stage as many as sixteen infants were in oxygen tents at the same time".

The Kensington committee appeals to the Minister to revert to what apparently was his previous plan—namely, that the Princess Louise should be preserved as a children's hospital and be placed (as though its unfortunate amalgamation with St. Mary's had never taken place) under the North-West Metropolitan Regional Hospital Board—or alternatively asks him to attach it to one of the teaching hospitals which has a deficiency rather than a surplus of children's beds. The Minister could scarcely wish to oppose this suggestion if St. Mary's could be induced to make it; and St. Mary's would surely be wise to rid themselves of what has clearly become a very embarrassing problem. To do so they must obtain elsewhere, for a time, the obstetrical and gynæcological beds they will need while their new unit is being built; but, according to the Kensington committee, the regional board is prepared to find these, "possibly by closing the children's beds at St. Charles'" which is close beside the Princess Louise. We hope that, if St. Mary's can count on controlling the borrowed beds, this alternative may prove acceptable.

ANOMALOUS AIR SHADOWS

LUMBAR air encephalography by a technique designed not to alter the intracranial pressure is being increasingly used, as an alternative to ventriculography, in the investigation of intracranial tumours, including those in the posterior fossa.[2] When there is obstruction to the cerebrospinal-fluid pathways, air filling of the ventricles may not take place and the interpretation of the films depends largely on the appearances of the basal cisterns and cerebral sulci. Schechter et al.[3] have reported from the National Hospital, Queen Square, four cases in which there were surprising air shadows. In all four there was an obstructive lesion in the posterior fossa: in one an astrocytoma invading the fourth ventricle, shown at operation and necropsy; in one an intrinsic tumour of the medulla oblongata demonstrated at operation; and in the other two stenosis of the aquaduct of Sylvius shown by

1. *Lancet*, 1958, i, 482.
2. Norlén, G., Wickbom, I. *J. Neurol. Neurosurg. Psychiat.* 1958, **21**, 1.
3. Schechter, M. M., Bull, J. W. D., Carey, P. *Brit. J. Radiol.* 1958, **31**, 317.

ventriculography. In all four patients air encephalography showed abnormally large sulci corporis callosi, and in one the cingulate sulcus was also unusually wide and well outlined. In the two tumour cases an unusual shadow was seen just to the left of the third ventricle; this shadow was half-moon shaped in the lateral position, and in the anteroposterior view was situated just to the left of the midline, being rounded medially and drawn out laterally. Schechter et al. thought that this latter shadow represented a dilated cisterna ambiens and confirmed this by studying the radiological appearances of this cistern in a normal brain and in the necropsy specimen of their first case after pledgets of cotton-wool soaked in radio-opaque material had been placed in the cistern.

To elucidate these unexpected appearances further, the Queen Square workers reviewed a hundred normal lumbar encephalograms and a hundred encephalograms of patients in whom there was thought to be cerebral atrophy. Unfortunately they do not mention any criteria on which the diagnosis of cerebral atrophy had been made. In the normal group some filling of the sulci corporis callosi was shown in five cases and of the cisterna ambiens in ninety-two, but never to the same degree as in the two tumour cases. In the cases of cerebral atrophy the sulci corporis callosi were seen in ten cases and the cisterna ambiens in ninety-three, but here again considerable dilatation was never seen. Pronounced filling of the sulcus corporis callosi on air encephalography has been reported on four previous occasions in cases of tumour of the posterior fossa; and a case has been described [4] in which there was a shadow similar to those ascribed by Schechter et al. to dilatation of one side of the cisterna ambiense associated with a posterior-fossa meningioma. Schechter et al. do not give any convincing explanation of these surprising encephalographic appearances with obstructive lesions in the posterior fossa; but their observations are of considerable practical importance, as it would be easy to ascribe dilated cerebral sulci and a dilated cisterna ambiens to an atrophic process in the brain, and to omit doing further investigations which might reveal a tumour in the posterior fossa.

ACUTE EPIGLOTTITIS

LITTLE has been written about acute epiglottitis, a serious and often fatal disorder of early life. Jones and Camps [5] last year called attention to the condition in Great Britain, and Berenberg and Kevy [6] emphasise the need for prompt diagnosis and treatment. They report from the Boston Children's Medical Center a series of 42 patients, with ages ranging from three months to fourteen years, in only 1 of whom was the diagnosis made before admission. The majority of the children were admitted in the winter and early spring, and *Hæmophilus influenzæ* group B was the predominant but not the only micro-organism producing the clinical picture. There was an abrupt onset and rapid evolution of the serious features. About half the children had been ill for less than eight hours before admission; and three, who were dead on arrival at hospital, had been ill for less than six hours. Patients who could describe their symptoms said that they had extreme pain in the throat and on swallowing. The secretions of the upper respiratory tract were retained with copious "puddling" of the pharyngeal mucus and excessive "drooling". Restlessness, irritability, and difficulty in breathing were noted early. Hoarseness and a croupy crow occurred in about a third. The temperature, pulse-rate, and respiratory-rate were all raised. Some patients showed a state of shock with pallor and cyanosis. Enlarged neck glands were uncommon and pharyngitis was only moderate, but the involvement of the epiglottis was striking and easily seen. The tongue must be adequately depressed, and then the inflamed and œdematous epiglottis rises readily into the field of vision, resembling "a bright red cherry obstructing the pharynx at the base of the tongue". With the diagnosis made, it must be regarded as presenting an emergency necessitating prompt admission to hospital. There must be constant and expert observation by medical and nursing staff. The child should be placed in a cool, humidified atmosphere and all preparations made for tracheotomy, which must not be delayed if the patient is cyanotic and obviously in need of oxygen. In the Boston series there were no deaths in children so treated; and the 5 deaths in the whole series could, in the opinion of Berenberg and Kevy, have been prevented by early tracheotomy—a conclusion according with that of Jones and Camps. In view of the emergency, antibiotic therapy must not be delayed for bacteriological diagnosis. The American workers administer chloramphenicol intramuscularly in doses of 100 mg. per kg. body-weight for the first twenty-four to thirty-six hours, and then 50 mg. per kg. orally if it can be swallowed. It is clear that acute epiglottis should always be thought of and sought in acutely developing respiratory distress in childhood. The common diagnoses with which the Boston children were referred to hospital included "croup", tracheobronchitis, laryngitis, streptococcal pharyngitis, asthma, and foreign body in the respiratory tract.

4. Castellano, F., Ruggiero, G. *Acta radiol., Stockh.* 1953, suppl. 104.
5. Jones, H. M., Camps, F. E. *Practitioner*, 1957, **178**, 223.
6. Berenberg, W., Kevy, S. *New Engl. J. Med.* 1958, **258**, 870.

MEDICAL WOMEN'S CONGRESS

WHEN a group of women doctors met in New York in 1919 to form the Medical Women's International Association, their president was Dr. Esther P. Lovejoy; and it was Dr. Lovejoy, followed by Dr. Janet Aitken, the new president, who responded to the toast of The Association at last Monday's banquet (see p. 220). This was the concluding event of a large and successful gathering which opened on July 15 with a reception at the senate house of London University, attended by Queen Elizabeth the Queen Mother as Chancellor. The subject of the scientific sessions, The Adolescent, was treated from various standpoints—physical, psychological, social, and familial.

Miss Josephine Barnes (London) spoke on gynæcological aspects of puberty; Prof. M. L. Chevrel (Rennes) on cancer in adolescents; Prof. Sellina Gualco (Rome) on endocrinological disorders of puberty; Dr. Alma Morani (U.S.A.) on correction of physical defects; Dr. H. J. A. Verhogen (Holland) on sociological and scholastic aspects; Dr. Hadassa Heinrich (Israel) on medical examinations in a youth corps; Dr. Melitta Mitscherlich (Düsseldorf) on the development of the ego; and Dr. Viveka Lagencrantz (Sweden) on psychiatric aspects of adolescence.

The British hosts of the Association were the Medical Women's Federation, whose president is now Miss Katharine Lloyd-Williams.

Prof. G. M. WISHART, dean of the faculty of medicine of the University of Glasgow, died on July 18.

Special Articles

COMMUNITY TREATMENT OF MENTAL ILLNESS *

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THE isolation of the mental hospital, which was practically absolute before the Mental Treatment Act of 1930, is rapidly disappearing, and more and more psychiatric patients are being treated in the community instead of in the hospital. The hospital's first link with the community was the outpatient department. Later liaison was gradually established with outside services such as probation departments, industrial medical officers, child-guidance centres, and the Ministry of Labour. Social psychiatry continued to grow steadily, but of late years the pace has quickened as more and more community centres, day hospitals, and night hospitals have been opened. These have varied in form and setting. Some are independent, while some are associated with mental hospitals and some with psychiatric units in general hospitals. Some offer domiciliary visits, some do not.

PARTIAL COMMUNITY CARE

All these developments are in fact extensions of the work of the outpatient department. The day hospital offers a more comprehensive system of aftercare which enables the inpatient to be discharged from hospital earlier and often avoids the need for readmission, while the night hospital is a useful halfway stage where patients can adjust themselves gradually to life and work in the community. Day centres and day hospitals offer an alternative to hospital treatment as well as sometimes preventing the need for it, and their group atmosphere is of inestimable value for certain patients. They are useful additions to hospital resources and lessen the strain on beds, but they do not necessarily alter the function of the hospital.

Other schemes try to relieve the pressure on mental-hospital beds more directly. In Amsterdam, for instance, there is a scheme for domiciliary visits and community care run by the city authorities.[1] In this country, efforts are being made in different ways. It is sometimes said that a community service is only practicable in a compact urban population, but the Worthing [2] experiment shows what can be done in a county area.

Though these schemes were usually started with the idea of saving money and hospital beds, experience shows that they have other advantages, and that they allow the patient to be helped in ways outside the scope of inpatient treatment. Earlier treatment, prophylactic measures, adjustment of interpersonal relationships, and treatment of the family as a unit all become possible.

Most of the community schemes do not cope with all forms of psychiatric illness. For instance, patients with chronic psychoses, particularly if they have antisocial reactions, are usually sent to the local mental hospital and pass from the care of the community service. Some schemes are more comprehensive, but generally speaking the chronic mental patient is excluded from community treatment once the home situation becomes too strained for him to go on living at home.

A Comprehensive Service

The system of community treatment which I believe offers patients the best care at all stages of their illness is a comprehensive service which treats all mental illness, including the chronic psychoses. This means that the mental hospital must take an active part in the scheme and is the most practical way of using our existing resources. It also means that we must alter our attitude to the chronic patients, and establish a personal relationship with them.

In a service of this kind admission to hospital is not restricted. It is still promptly available, but it is limited to short-term episodes in a course of treatment which is based on the home. Admission and discharge are arranged in a flexible way with a minimum of formality. The function of the hospital is altered and modified, so that it becomes only one part, but an essential part, of the service. The resources and energies which would otherwise be spent providing long-term residential accommodation for patients can be diverted to domiciliary and community activities. The emphasis in the scheme of therapy moves from the hospital to the home, with community treatment playing an important part in all psychiatric illnesses. The patient retains his social and economic independence, and the mental hospital, like the general hospital, offers him specialised inpatient treatment when the resources of the home and the domiciliary and community services become temporarily unable to cope with his illness.

There is a tendency to regard long-continued hospital treatment as the only possible course in severe long-term psychoses. There is a fear that without it antisocial acts would increase, and many people are doubtful how the patient would respond to community influences. Yet the aggression of the psychotic is due to psychological insecurity, and is secondary to the primary reactions of apprehension, depression, or suspicion. Early help with his emotional upsets, and a personal relationship in which he feels that his problems are understood are effective means of reassuring him and easing emotional tensions. To restrict such a patient, on the other hand, is the very way to aggravate his emotional disturbance. He will tend to become confirmed in his feelings of suspicion, depression, or apprehension, and his tendency to antisocial acts may be increased. It would accordingly seem sensible on psychiatric grounds to substitute for long-continued custodial precautions the establishment of a personal relationship with the patient.

THE HOSPITAL'S ROLE

For a comprehensive scheme to be successful the following conditions are essential: integration of the hospital service with the local health authority; removal of barriers isolating the hospital from the community; an internal psychotherapeutic atmosphere in the hospital; and an enlightened and informed public opinion in the community.

Integration of Hospital and Local-authority Services

This may be arranged by various administrative procedures. Nottingham, for instance, has a "joint user" arrangement, under section 51 of the National Health Service Act, which enables the medical staff of the mental hospital to act also as the medical staff of the mental-health department of the local health authority.[3] At York, without formal referral to the

* Based on a Maudsley lecture given to the Royal Medico-Psychological Association on Feb. 10, 1958.

1. Ling, T. M. *Lancet*, 1954, i, 1127.
2. Carse, J., Panton, N., Watt, A. *ibid.* 1958, i, 39.
3. Macmillan, D. *ibid.* 1956, ii, 1094.

Ministry of Health, the local mental hospital is linked with the local health authority of the city. At Oldham the regional hospital board and local-authority services have been integrated without incorporating the mental hospitals. Good relations between medical superintendents and medical officers of health are also creating a large measure of cooperation in other areas of the country on a more informal basis.

Barriers between the Hospital and the Community

The main barriers are the locked-door system and the custodial duties of the hospital. The open-door principle must be established before the hospital can be accepted by the community. Another barrier is certification, which segregates all those to whom it is applied from other human beings. The stigma and the deprivation of civil rights cause resentment in the mind of the patient which may last many years. Certification also has an adverse effect on the relationship between the patient and his relatives, his friends, and other members of the community, because it leads them to regard him as a person apart and different from themselves. With modern resources in therapy, compulsion can be limited to brief periods, and arrangements made for the patient to complete his stay in hospital on a voluntary or non-statutory basis. Even the voluntary formality is resented and patients appreciate the non-statutory procedure.

The Hospital's Psychotherapeutic Atmosphere

The role of the hospital in a community treatment scheme is to prepare the patient for life in the outside world again. Its wards should be psychiatric rehabilitation units each with its own group atmosphere. This necessitates a complete change of attitude in the staff. But no true doctor-patient or nurse-patient relationship can develop so long as one party is a prisoner of the other and legally inferior to the other. When the doors are open and legal disability has been removed, the staff use their personalities to deal with psychiatric crises and to help the patient to solve his problems of adjustment. A happy relationship develops, and the staff (medical, nursing, and social) join with the patient to explore methods of preparing for his return to the community.

Opening the doors and removal of certification are essential preliminary measures, but overcrowding must also be dealt with, so that the patient can receive adequate individual attention. Community treatment makes this easier by enabling the admission units to cope with the reduced demands made on them, without having to move patients into other wards to make room for fresh admissions. Accommodation for patients is not lavish and is inadequate for active rehabilitation.

Many other measures, such as modernisation of ancient buildings and furnishings, more individual amenities, and the division of the patients into smaller groups, are also needed. Occupational therapy is essential. The patient should graduate from the occupational-therapy class to employment in the hospital departments, later to an industrial rehabilitation unit, and finally to work in the community while still living in the hospital under a "hostel" or "night hospital" scheme.

Education of the Community

The attitude of the community to mental illness and to the mental hospital must be altered before there can be willing and early acceptance of psychiatric treatment by the patient. The hospital and local-authority staff can lead the way, but the gap between the attitude of the public and that of the medical, nursing, and social staff should not be too great. One of the first essentials in lessening the gap is an internal hospital community atmosphere in harmony with accepted standards of social behaviour, which does not offend the susceptibilities of the public when they visit the hospital. A community does not accept a hospital until the patients on their return home speak with appreciation of their experience in hospital. Education by lectures and other means is necessary, but is not really effective unless backed by visits to all wards and departments of the hospital where the public may see for themselves the conditions under which the patients are treated.

An improved attitude to the hospital gradually leads to a more enlightened attitude to mental illness in general, and this influences the attitude of the patient to his illness. He seeks treatment earlier, and is more cooperative because he is less apprehensive, and is willing to accept the help of the mental hospital as if it were a general hospital. The patient is also influenced by the atmosphere of the hospital, and the staff of the admission wards believe that the most important factor in gaining the cooperation of the short-term compulsory patient is the attitude of the other patients. The viewpoint of the patient, the atmosphere of the hospital, and the attitude of the community all need adjustment; but once the change has begun, each reacts beneficially on the others. This enables an effective liaison to be made with employment exchanges, local employers, industrial rehabilitation units, probation departments, and all the other agencies in the community whose help the patient is likely to need. Once this stage has been reached, the help given by a "league of friends" can be invaluable.

WHAT CAN BE DONE AT HOME

The home visits in a community scheme of treatment may be made by social workers, by psychiatrists, or by both. The visits by the psychiatrist in a service which is integrated with the mental hospital are made at the request of the mental-health department, and are in addition to domiciliary consultations at the request of the general practitioner. In the Dutch scheme the first visit is made by a psychiatrist, but our experience at Nottingham suggests that there are advantages in having the first visit paid by a social worker. Often the initial investigations and the early visits take much time. In some cases a social worker can deal with the patient's social problems and, if need be, refer him to the outpatient department. In others the psychiatrist and the social worker pay a joint visit after the preliminary investigations have been completed.

TWO PRACTICAL EXAMPLES

Senile psychosis and schizophrenia are two illnesses which fill many hospital beds and cause overcrowding of hospital wards. To illustrate the use of community treatment methods as an alternative to long-term or permanent inpatient stay I shall describe the procedures we use with these two psychoses at Nottingham.

Senile Psychosis

When a patient aged 65 or over is reported to the mental health department of the local health authority, a domiciliary visit is arranged by a psychiatrist and a social worker. They assess the home situation and decide whether the problem is primarily psychiatric, physical, or social. If it is psychiatric, they decide whether the patient can be cared for in the community or needs admission to hospital. If community care is chosen, the social worker gets in touch with relatives, arranges for home help, informs health visitors or the welfare services department, and takes all other necessary action. Attendance at the day occupational centre is arranged when this is thought appropriate and helpful.

If admission to hospital is necessary, it is explained to the patient and to the relatives that admission is for four weeks only. The cooperation of the old person is obtained, and reassurance is given that there is no question of his being "put away". The relatives are assured that further help will be forthcoming when needed and that no undue burden will be placed on them, but that they must play their part and continue to accept responsibility for the old person. In these general discussions with the relatives and the old person we try to show them the situation as a shared problem, to the solution of which all, including the psychiatrist and the social worker, must contribute. Short admissions are now being arranged at an earlier stage of the illness, when the relatives

first begin to resent the strain of looking after the old person, and before personal relationships have broken down. Relief for holiday periods is arranged some months beforehand, so that the family are able to make definite arrangements to enjoy an annual rest from their responsibility of looking after the old person. This is particularly important when there are young children in the household.

We have found that the relationship of the old person with the other member or members of the family is more important than the degree of the psychosis in determining whether admission to hospital will be necessary. Once an attitude of rejection towards the old person has become firmly established in the responsible relative, no efforts on our part can alter it. Help given before the attitude of rejection has become fixed, is appreciated, and the relatives are happy to continue to accept the responsibility. Once the old person feels rejected he deteriorates quickly; and we accept patients who are rejected, even when the causes are mainly physical or social, because otherwise the case will rapidly become a psychiatric one.

Deterioration through loneliness is common, and here we find the group atmosphere of the day occupation centre invaluable. The health visitors are now reporting deaths which leave an old person living in solitude, so that arrangements may be made for them to attend the centre as a preventive measure. Attendance at the centre is also useful for patients who are partially rejected by their relatives and who relapse after improvement in hospital. Such patients are now introduced to the centre immediately on discharge.

Because of this policy of prompt admission for a limited number of weeks, the number of geriatric admissions increased at Mapperley Hospital from 202 in 1951 to 439 in 1956. But the number of patients admitted during 1951 who were still in hospital four months after the end of the twelve months' period was 41, while the corresponding number for 1956 was 49. The geriatric inpatient wards are thus coping with many more patients without extra beds. The old people are happier, and the relatives have their guilt reactions resolved, and are helped to solve their emotional conflicts. We have also been able often to take preventive action through our opportunities of studying the evolution of the emotional situations and of personal relationships within the family.

Where the strain on the relatives is too great, whether for physical or (more commonly) psychiatric reasons, we accept responsibility and provide a bed in the long-stay annexe. Arrangements have been made for transfer of long-stay patients on an exchange basis with the geriatric wards of the general hospital or with the residential accommodation of the local-authority welfare services department. This provides a method of improved classification and ensures that beds are promptly available.

Schizophrenia

Patients with chronic schizophrenia and paraphrenia form a large proportion of the long-term inmates of mental hospitals. They are inclined to be more uncooperative and reluctant to accept help than other psychotic patients, and their delusions may make them antisocial and resentful. Compulsory short-term orders for three or seventeen days may be needed at first. Active treatment is given immediately on admission, and by the time the order ends they are usually prepared to finish their treatment as voluntary patients. After discharge contact is maintained through the social worker and the aftercare clinic. The patients are helped with work problems, and help is given if necessary with the home situation. If they relapse or the home situation becomes too strained, readmission is arranged—again by short-term order if necessary. After repeated admissions social adjustment is usually achieved. If a repeated seventeen-day period proves ineffective, use of a twenty-eight day period usually is beneficial.

This procedure demands much effort from the psychiatrist and social worker and high degree of cooperation from the relatives. Occasionally one is just reaching the stage of feeling that a losing battle is being fought, when the attitude of the patient gradually alters and he begins to cooperate and improve. Communication with schizophrenics is difficult, and on their part is effected at first through symbols. Improvement is so slow as to be almost imperceptible. They respond gradually and steadily to measures which maintain their self-esteem and enable them to readjust socially.

The problem is more complex than of senile psychosis, and we are still trying to determine the best methods of dealing with the home situation, the work situation, and the group situation in hospital.

A follow-up survey of all first admissions entering the hospital during 1954 was made to determine how many were still inpatients at the end of last year. Only 9 of these 660 first admissions remained, of whom 5 were senile psychoses, 1 a case of general paralysis, 2 states of depression complicated by social and physical factors, and 1 a psychopathic state in a borderline defective. No patient suffering from schizophrenia was still in hospital. With these patients, too, it is important to assess that a fair balance is struck between, on the one hand, imposing too great a strain on the relatives and, on the other, ensuring that the community plays its due part in the rehabilitation of the patient.

Discussion

There is a tendency to regard preoccupation with the setting in which the patient receives treatment as subsidiary to actual measures of treatment. I submit that the provision of a mental health service in which the patient can be treated without disturbance of his self-respect and which preserves the essentials of the doctor-patient relationship is in itself a psychotherapeutic measure of fundamental importance. The patient's self-confidence is almost always disturbed, he is emotionally upset, and needs the help of a community service even more than other patients. Restriction in hospital and deprivation of civil rights undermine further his self-confidence and aggravate his emotional disturbance.

Family relationships and community relationships are often seriously upset by the time a patient is brought to our notice, and a tremendous strain is imposed on a family when one member is mentally ill. To treat a psychosis without dealing with such disturbed relationships is to invite subsequent relapse. Prolonged removal of the patient from the family tends to make the family close its ranks and resist later attempts to restore him to their midst. Many patients remain in our mental hospitals though their difficulties are no longer psychiatric but social.

Often a faulty relationship with another member of the family has been one of the causes of the patient's illness, and adjustment of the attitude of this relative may be as important as the treatment of the patient. These relationships in the home, at work, and in the community can be adequately dealt with only by community methods, and with a due appreciation of the need for adjustment of the attitude of the other people concerned.

The mental hospital segregates people in artificial large groups. It is suitable for short-term treatment and rehabilitation, but not for long-term social adjustment. For this we are dependent on the family, which is accustomed to dealing with its own relationships. The family group, if not disrupted and interfered with, usually

accepts responsibility for solving its own problems. This attitude, if helped and directed into psychotherapeutic channels, can be a powerful rehabilitating factor. We should treat the family as the unit—not the patient in isolation.

Community treatment averts the development of antisocial attitudes and the overlay of aggression which are produced by compulsion and restrictions, and thus leaves the patients free to deal with their problems of social adjustment. Their psychotic symptoms, if fully established, are not eradicated, but they cease to be the major and dominating factor in the patient's existence. Compulsory long-term hospital care tends to perpetuate the dominance of the psychosis, whereas the more flexible regime of community treatment encourages the patient's natural tendency to social readjustment and helps him to remain in the community despite the handicap of chronic psychosis.

One definite advantage of community treatment is that by means of domiciliary visits psychiatric illness is treated at an even earlier stage than is possible with the outpatient clinic. In an integrated mental health service the home and health visitors recognise psychiatric situations before serious symptoms have developed. Potential stages of a serious breakdown can be treated, and prophylactic measures started in a way which is impossible without a community service. In taking these early steps it is essential to inform the patient's general practitioner, so that he remains a member of the team. In Nottingham the system has tightened the links between the mental health service and the general practitioners, who often now refer patients for attendance at the day centre, and for other prophylactic measures, instead of merely referring them for admission.

To sum up, community treatment not only makes possible continuity of care for all forms of psychiatric illness but by its beneficial influence on public opinion persuades patients and their relatives to come spontaneously to the mental health department for help and advice, and to accept the mental hospital, like the general hospital, as a place where the patient goes to speed his rehabilitation.

Evaluation of the benefit offered to the psychiatric patient by community treatment must await scientific appraisal, but its advantages are already sufficiently clear to justify a critical attitude towards rigid measures of long-term hospital treatment. The possible methods of providing this treatment should be given a practical trial and the results of these experimental schemes studied carefully, so that we may, in due course, judge which is best for the patient.

INTERNATIONAL FEDERATION OF SURGICAL COLLEGES

THIS Federation was formally inaugurated in Stockholm on July 4. Its aims are:

The establishment and maintenance of close relations among approved surgical colleges and kindred institutions.

The encouragement of the maintenance of high standards of education, training, and research in surgery and its allied sciences.

At the meeting in Stockholm Sir Harry Platt was elected president for the next three years, and Dr. I. S. Ravdin (U.S.A.) and Dr. E. Dahl-Iversen (Denmark) were elected vice-presidents. The other members of the executive committee in the first instance will be representatives from Holland, France, Sweden, Norway, Belgium, and Australasia. The member-institutions are:

Academy of Surgery of Paris, American College of Surgeons, Belgian Surgical Society, College of Physicians, Surgeons, and Gynæcologists of South Africa, Danish College of University Surgeons, Dutch Association of Surgeons, Italian Surgical Society, Norwegian Surgical Association, Royal Australasian College of Surgeons, Royal College of Physicians and Surgeons of Canada, Royal College of Surgeons of Edinburgh, Royal College of Surgeons of England, Royal College of Surgeons in Ireland, Royal Faculty of Physicians and Surgeons of Glasgow, Swedish Surgical Society.

The secretary of the Federation is Mr. Kennedy Cassels, Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2.

Public Health

No More Fluoride at Andover

IN 1955 Andover Borough Council unanimously accepted their public-health committee's recommendation that the town should be one of the four areas to take part in the Ministry of Health's scheme to study the effect of adding sodium fluoride to water-supplies as a means of preventing dental decay among children. Fluoridation of the town's water accordingly began on July 17, 1956. The proposal aroused local opposition, and an anti-fluoride association was formed which collected funds from ratepayers and ultimately brought an action against the council on the ground that they had acted beyond their powers in introducing fluoridation.

In the meantime, at the recent borough election, most of the councillors who were in favour of fluoridation lost their seats, and the newly elected council on July 1 adopted their public-health committee's recommendation to stop the fluoridation of the town's water-supply without delay. This decision was put into effect on July 2. The legal action has been adjourned *sine die*.

The First Quarter

Reports on the first quarter of this year in England and Wales,[1] Scotland,[2] and Eire [3] include the following figures (the figures for the corresponding quarter in 1957 are included for comparison):

	England and Wales		Scotland		Eire	
	1958	1957	1958	1957	1958	1957
Birth-rate (per 1000 population) ..	17·2	16·6	19·7	19·5	20·1	20·4
Death-rate (per 1000 population) ..	14·8	12·2	14·6	12·7	14·1	13·4
Infant-mortality rate (per 1000 live births)	25·1	25·2	32	32	44	38
Tuberculosis death-rate (per 100,000 population)	14·2	11·7	18	17	24	25

In England and Wales in 1957, according to provisional figures, 6715 deaths from influenza were registered, compared with 2626 in 1956 and 2983 in 1955. Deaths from acute poliomyelitis numbered 225 in 1957—111 more than in 1956, but 16 less than in 1955. There were 2 deaths from smallpox last year—the first in this country since 1953. The infant-mortality in England and Wales as a whole was 23·1 per 1000 live births in 1957, compared with 24·9 in 1955; the corresponding rates for Wales alone were 28·4 and 31·4.

1. Registrar-General's quarterly return for England and Wales, no. 437. H.M. Stationery Office. Pp. 30. 2*s*.
2. Quarterly return of the Registrar-General, Scotland, no. 413. H.M. Stationery Office. Pp. 32. 2*s*. 6*d*.
3. Quarterly report on Births, Deaths, and Marriages, no. 377. Obtainable from Government Publications Sale Office, G.P.O. Arcade, Dublin. Pp. 16. 6*d*.

Congresses

STRESS AND MENTAL ILLNESS

IN an intense and interesting conference in Oxford last week, some 40 distinguished scientists, predominantly psychiatrists, psychologists, and physiologists, brought together by the Mental Health Research Fund, tackled the subject of "stress" and its action on man's health, particularly the health of his mind. They set out to clarify the mass of facts that have sprung in recent years from the growing attack on the questions of how and why the animal reacts to the pressure of its environment in such a bewildering variety of ways. People trained in several disciplines, precise and less precise, and often talking therefore in conflicting terms, have contributed to knowledge of the phenomena that this reaction can generate; and the meeting gave prominent thinkers in this branch of biology the chance to illuminate by close contact, often outside the conference room, the difficulties of effectively communicating to one another the observations they have made and the significance they put upon them. Their formal deliberations suggested that it is not yet possible to sketch with confidence an embracing and unifying picture that will include the whole scene. But the gaps that separate the more sharply defined schools of thought—the physiologically minded and those who think in psychological terms, for instance—were not so wide as they at first sight seemed, and some promising bridge-building materials became apparent.

In the report that follows, we can note only a few of the contributions that the conference heard, and the balance between the physiological, the psychiatric, the psychological, the psychosocial must be ill struck; but it is an immediate record of a notable attempt to sum up progress in a subject that may at present defy summing up. We hope that the Fund will publish the proceedings in greater detail, prefaced or concluded perhaps by a further analysis and judgment.

WHAT IS STRESS?

In its daunting venture, the conference was fortunate in having as its leader Sir GEOFFREY VICKERS, chairman of the research committee of the Mental Health Research Fund, who was more than equal to the task of giving profitable direction to swiftly changing lines of thought. A prime difficulty, never fully resolved, was to decide what meaning or meanings to attach to the word "stress". Dr. DEREK RICHTER had prepared for the conference's consideration a concise memorandum on the current usage of this term by different scientists—physicists, biologists, physiologists, psychologists—and ranging from the physicist's precision of dynes per sq. cm. to the psychologist's "anxiety, tension, or a defensive behavioural response". This helpful document was never formally discussed: such a discussion might have served as a clarifying preliminary debate. As it was, everyone understandably adhered to his own notions, without much explanatory definition, and in the early exchanges this was a source of difficulty. Sir Geoffrey promptly recognised this nettle and seized it firmly by issuing, on the second morning of the conference, a note on the meanings attached to "stress" during the first day's discussions. In this he said:

"We require a word to cover all those felt needs which evoke purposeful activity. If this be 'stress', then, as Professor Selye says, only death can relieve it. To avoid so wide an application, I will use the word 'challenge' to cover both the need and the signal which evokes action to meet it.

"The course of response to these challenges may pass through several stages.

(i) The organism can meet the need.

(ii) The organism can meet the need but only for a period which may not be sufficient.

(iii) The organism cannot meet the need without abandoning, at least for the time being, the effort to pursue or evade some other relationship.

(iv) The organism cannot meet the need at all.

"If these stages occur successively, the state of the organism will change along four dimensions which are not exactly correlated: and all these changes may, in current usage, be attributed to 'stress'.

(i) It will change physiologically. These changes will depend partly on the energy requirements of the response and partly on its emotional accompaniment. They may begin at stage (i) and often reach their peak in stage (ii) unless they are later complicated by the indirect effect of subsequent stages.

(ii) It will change emotionally. Anxiety may arise irrationally at stage (i) or rationally at stage (ii). The whole gamut of emotional changes may appear in the course of stages (iii) and (iv).

(iii) It will change behaviourally. At the end of stage (ii) its behaviour towards some or all of its other goals will change. At stage (iv) or earlier it will give up its purposeful activity towards the relation which is being defeated.

(iv) It will change structurally. From the end of stage (ii) it becomes differently structured, as it abandons or modifies one after another of its governing relations."

And he concluded:

"To clarify our discussion, I make the following suggestions:

(1) We are concerned with four separate objects of attention, for which we need separate words. It is unfortunate that three of these are themselves fourfold.

(i) Four types of (more or less) observable change;

(ii) the situations which cause these changes;

(iii) the processes by which these changes take place;

(iv) the behaviours which accompany these processes.

(2) The simplest way, consistent with existing usage, in which we can mark these distinctions, when we want to be precise, is, I suggest, to refer to them as 'stress-change', 'stress-situation', 'stress-process', and 'stress-behaviour'.

The terms 'stressor' and 'stress-response' have such strong physiological connotations that they are best reserved for that field; but they would be included by the wider terms 'stress-situation', 'stress-change', and 'stress-behaviour'.

(3) Though the four types of change—physiological, emotional, behavioural, and structural—are intimately related, there is clearly not a one-to-one correspondence between them. We should not assume that they are different aspects of the same 'thing', except in so far as we know them to be exactly correlated.

(4) The only valid general use of the word 'stress' at present is adjectival. It connotes a degree of challenge sufficient to evoke the kind of change or behaviour which interests the particular observer. Its meaning therefore depends not only on the 'dimension' in which he is interested but also on the threshold above which appear the kind of phenomena which he finds interesting."

The conference did not achieve a better clarification of terminology than this.

MATCHING OF PATTERNS

In his opening remarks, Sir GEOFFREY VICKERS pointed out that disorganisation—or inability to function at one's normal level—might, in fact, be defensive reorganisation exercising a protective role. As Field-Marshal Lord Wavell put it, stupidity in generals should never excite surprise, since they were of the few tough enough to be generals at all, their essential qualification being their ability to function at some level in conditions of stress which would cause less stable organisms to break down.

The stressful situation which concerned the psychiatrist was produced not by events but by the organism's interpretation of events in relation to itself. This in turn was a function of the way in which the individual personality was organised; and any conceptual model of this must include the organisation of experience. There

was a need for the better integration of the concepts of the various facets of man, his physiology, the way he perceives and learns, his mental energy. Some recent developments already made for better integration. The electroencephalograph might provide a physiological measure of some aspects of personality and personal integration, and had suggested to Dr. Grey Walter a physiological theory of learning.

A recurring idea was that of matching with a pattern. The raw material of experience was not the whole of the "blooming, buzzing confusion" which surrounded us but a selection of the regularities which we could detect, and these in turn provided the categories for the classification of further experience. Conditioning depended on recognising regular relations between recurrent events in such categories. Judgments of value were linked to situations recognised by their correspondence to some pattern previously experienced. Expectation, then, played a large part in the organisation and disorganisation of personality; for what we knew consciously as expectation was only the exposed part of an iceberg that floated very low in the water.

Conflict was not necessarily noxious in itself: its outcome depended on the organisation of a given individual and his vulnerability to a particular form of stress. Today the world was full of energy waiting to be borrowed, and the weakest signal might release gigantic force; for "the development of our mental powers has endowed us with so alarming a capacity for organisation —and disorganisation".

"PSYCHOSOMATIC?"

Prof. HAROLD G. WOLFF (New York) distinguished between direct-acting stimuli (strong physical assaults, such as heat and cold) and those of lower intensity with an indirect action and the capacity to act as signals to the organism. This division of stimuli corresponded closely to Professor Selye's non-conditional and conditional stresses. Professor Wolff described an investigation into the medical history of 3500 people living in the United States, including 1700 semi-skilled women, 1500 skilled men, and smaller groups of Chinese graduates, Hungarian refugees, and recent American graduates preparing to be executives. Of all the recorded illnesses in these 3500 people, two-thirds were concentrated in a quarter of the group. Clusters of illness could be identified in many individuals, and the great majority of clusters occurred at times when the individual perceived his life situation to be unsatisfying or over-demanding, at times of threat to security or failure to satisfy important personal needs. Statistical analysis supported the conclusion that illness-episode rate was greater at times of unsatisfactory life situation. Professor Wolff's findings had made him uneasy about the validity of labelling certain illnesses "psychosomatic". There was no difference, it seemed, between peptic ulcer, gout, or breast cancer in their relationship to the patient's stress. The majority of symptomatic illness (medical, surgical, or psychiatric) arose in, or might be remarkably influenced by, environmental circumstances which the individual conceived as threatening. It might be that the life of the highly stressed person was telescoped in a way that brought him at an earlier age into the period of life at which malignant disease was commoner.

DISORGANISATION OF BEHAVIOUR IN ANIMALS

Dr. R. A. HINDE (Cambridge) discussed problems arising in animals beset by conflicting tendencies in natural or near-natural conditions. In Nature higher animals were rarely single-minded: the territorial songbird would attack conspecific animals which it encountered on its own territory, but it would flee from those it met outside that limit; encounters at the border of a bird's territory would evoke a confused response. Conflicting tendencies might lead to the inhibition of all but one response or group of responses: thus, a cat would not feed at a site where it had experienced alarm, even though it was starving. The distinction between redirection activity and displacement activity in animals is very relevant in the attempt to relate animal to human behaviour. In redirection activity an appropriate response may be directed to an inappropriate object: both sexual and aggressive behaviour may be evoked by its mate in the male black-headed gull, and the mate may redirect the aggression to some passer-by. In displacement activity, the action of the animal is apparently inappropriate: starlings may suddenly preen their feathers during a fight, or they may show vigorous foraging movements before copulation. Such displacement activity had been attributed to an "excess of drive", to "sparking over" from one centre of activity to another, but Dr. Hinde was dissatisfied with this hypothesis. The present trend was to look for common causal factors within the normal context. In the deprived animal some link necessary for the chain of normal behaviour was missing, and the animal might respond to a stimulus that was usually inadequate. Such a response might in fact be usefully adaptive, but it could result in bizarre stereotyped behaviour. Two chaffinches deprived of material for nest-making plucked their breasts bare to feather their own nest. In later nesting seasons, they continued to strip themselves of feathers, even though there was abundant nesting material available.

Prof. MARTIN ROTH (Newcastle upon Tyne) reflected on the possible selective advantages of inappropriate displacement activity or repetitive activity. Was the unresponsiveness of schizophrenics exposed to hard conditions in any way the outcome of a selective process?

Prof. HOWARD S. LIDDELL (New York) has for many years been investigating, at the Behaviour Farm Laboratory of Cornell University, the establishment of conditioned reflexes in animals and the generation thereby of experimental neurosis. An observation which attracted much interest was that concerning differences in mortality between goats conditioned ("trained") during a period of separation from their mother and those trained while the normal relationship with the mother continued. Of 10 young goats trained for a very short time (four to fourteen hours) without their mother, 2 died quickly, and hæmorrhages were found in the adrenal cortex at necropsy. 4 out of 5 twin pairs trained without their mother died in their first year of life, but only 1 out of 5 pairs trained with their mother died in that time. In Professor Liddell's experience, separation of the kid from its mother five minutes after birth could disrupt the maternal relationship, which could never then be established normally even though the period of separation was only a few hours. Professor Liddell believed that all conditioning was neurotogenic—a view that was questioned by some members of the conference. Prof. G. R. HARGREAVES (Leeds) remarked that all Professor Liddell's animals were much constrained passive recipients of noxious stimulants. It might not be the conditioning that produced the neurosis. Dr. J.

FULLER (Bar Harbor, Maine) was particularly interested by the high death-rate in the animals exposed to only a short stress. Could it be that this was the little pebble that started the organism on the non-conformist road, from which it was very hard to turn back?

PRISONERS OF WAR

In the matter of increased mortality in organisms exposed to some form of severe stress, Professor WOLFF presented figures derived from a recently completed study of United States prisoners of war. In the late war, 94,000 United States prisoners were taken in Europe and were imprisoned for about ten months. Less than 1% died before liberation. In the Pacific theatre 25,000 Americans became prisoners: they were in prison about four times as long as those captured in Europe and suffered far more threats, abuse, and humiliation. More than a third died before liberation. In the six years after liberation the number of deaths in the Pacific prisoners was more than twice the expected incidence in a similar group not exposed to the hazards of prison camps. The mortality-rate was three times greater in the Pacific than in the European prisoners. Deaths from heart-disease were twice as common, from cancer twice, from gastro-intestinal diseases four times, from suicide twice, from accidents three times, and from pulmonary tuberculosis nine times as common.

STRESS AND EXPERIMENTAL PHYSIOLOGY

To those who found it hard to get a foothold among the psychological and psychiatric concepts of stress and responses to it, Prof. HANS SELYE (Montreal) offered the firmer ground of facts gathered in his long study of experimental stress. Inflammation in the limb of a rat caused by the local injection of formalin could be modified by pretreatment with hormones: corticotrophin (A.C.T.H.) inhibited the inflammatory response and somatotrophin (S.T.H.) enhanced it. The intraperitoneal or intravenous injection of egg-white induced an anaphylactic reaction in the rat, and this could be inhibited by stress, but not in the adrenalectomised animal. The changes of periarteritis nodosa could be produced in the rat by administering an anticortisone hormone, such as deoxycortone. Partial ligature of a mesenteric vessel prevented these changes developing in the distribution of that vessel, indicating that the blood-vessels of the hormone-conditioned animal could be damaged by blood-pressures which were of no account in the untreated animal. Cortisone prevented the onset of bone lathyrism in rats fed on a diet that would induce the disease in untreated animals; and conversely S.T.H. would promote severe bone changes in rats eating a diet in which there were only small amounts of lathyrus, amounts that were not previously harmful.

What Professor Selye described as the most important outcome of twenty years' work was the experimental production of cardiac necrosis in rats exposed to corticoid hormones plus immobilisation. A special staining technique identified the areas of muscle susceptible to necrosis by demonstrating early prenecrotic degenerative changes. Potassium and magnesium ions had been shown to prevent these changes. Some aspects of this work have lately been described [1] in these columns.

Professor Selye owned, however, that only a very small part of the reaction to stress was mediated by hormones and by disturbances in the balance of hormone pairs; for, in hypophysectomised animals, the adaption syndrome proceeded much as in the intact animal.

As a supplement to Professor Selye's contribution, Prof. G. W. HARRIS (London) discussed a possible link between the nervous system and the endocrine glands. The stimulation of neural structures above the hypophysis—in the hypothalamus—evoked changes in target organs similar to those recorded by Selye. The portal system in the pituitary blood-supply suggested that this effect was transmitted by a humoral mechanism.

THE BODILY STRESS RESPONSE

Dr. HUDSON HOAGLAND (Shrewsbury, Mass.) described work on urinary metabolites done at the Worcester Foundation for Experimental Biology. The excretion of adrenaline and noradrenaline was measured in ice-hockey players, boxers, and psychiatric patients.

A group of Olympic boxers all had a high adrenaline output (about five times normal) before a fight; the noradrenaline was not raised, except in 2 men who engaged in vigorous shadow boxing before a fight. After the fight, noradrenaline excretion was very high and the adrenaline figures remained high.

Measurements in the Boston Bruins, a tough ice-hockey team, showed a similar pattern. In the 4 players actively skating, noradrenaline output was five to ten times higher after a game, while adrenaline excretion was relatively low. In 2 players "benched" for injuries, adrenaline figures went up while they were watching; and a player who became involved in a fight excreted very large quantities of noradrenaline.

	Noradrenaline (mg. per 100 mg. creatinine)	*Adrenaline*
Active players:		
Pre-game	2·7	0·36
Post-game	15·3	0·95
Non-players:		
Pre-game	2·2	0·23
Post-game	3·3	0·75
Fighting player:		
Pre-game	3·5	
Post-game	29·3	

The Bruins coach, evidently a phlegmatic fellow, never showed much response, as judged by excretion of adrenaline and noradrenaline, except as the result of a particularly arduous game with the Montreal team (a finding of which Professor Selye expressed approval).

Anxiety, it could be concluded, was associated with increased adrenaline output, and exercise with a rise in noradrenaline excretion. Similarly, in the psychiatric patients, the active aggressive type was the one who usually excreted more noradrenaline.

Dr. JOHN I. LACEY (Yellow Springs, Ohio) said that in the individual the physiological indications of the imposed load were unevenly distributed. Each individual might react violently in one particular way, such as change in skin blood-flow or systolic blood-pressure; and Dr. Lacey pictured a continuum between the random response at one extreme and the stereotyped response at the other.

DISTURBED BEHAVIOUR IN CHILDREN

Describing research on encopresis in outpatients at the children's department of the Maudsley Hospital, Dr. E. J. ANTHONY (London) referred to three types of toilet training (coercive, normal cooperative, and neglectful) and to three main types of soiling disturbance—continuous (from infancy), retentive (with overflow), and discontinuous (after a period of bowel continence). In the group of children studied 75% of retentive encopresis and 63% of discontinuous encopresis was associated with a coercive form of training. On the other hand in 68% of continuous encopresis the training was neglectful. 80% of neglectfully trained children showed a weak "aversion" reaction, as judged by a perceptual battery,

1. Selye, H. *Lancet*, 1958, i, 1351.

but 76% of those coercively trained reacted strongly. A group of children with sleep disturbances were compared with neurotic controls to assess the influence of various factors suggested as causes of sleep disturbance. Significant differences were found which pointed to sleeping in the parental bedroom, separation trauma, and phobia in the mother as important influences.

PSYCHOSOCIAL REMEDIES

In the discussion on the prevention and treatment by psychosocial means of psychiatric reactions to stress, Dr. J. D. SUTHERLAND (London) expressed doubts about present-day psychiatric institutions. Too many, he felt, still isolated and repressed the patient. They must become open systems having much more communication with society. Dr. Sutherland's colleague at the Tavistock Clinic, Mr. Eric Trist, had been investigating the sociotechnical system, the complex matching of social and technical factors in the individual's working environment. If the matching was inadequate, tension resulted, and a thorough analysis of the circumstances could often indicate the right remedy.

APPRAISALS

Dr. DENIS HILL (London), in a skilful review of the first three days of the conference, drew together some of the threads. He recalled how rarely the word "stress" had been used until comparatively recent years: Freud had not used it; Darwin was the one who came nearest to it in his definition of the struggle for existence. He did not think that the stressor could be defined: it owed its stressing quality to the nature of the individual, and it was the meaning of experience that mattered. This importance of the meaning of a stimulus to the organism stimulated recurred throughout the discussions. Dr. Hill had found Dr. Hinde's views on animal behaviour to be in line with clinical experience. He pointed specially to Dr. Hoagland's finding that the better the individual's performance at a task the less his steroid output and, in one sense, the less the stress he sustained; and to Professor Selye's demonstration that the duration of stress determined its effects. Dr. Hill attached importance also to Dr. Lacey's view that the autonomic nervous system was not just an atavistic instrument, not just an efferent system, but one which had important feedback functions. The conference, he thought, should direct its attention not to effects but to the stress process itself. And in that inquiry Dr. Hinde's guidance on the features of displacement behaviour in birds might be relevant to the study of tics and compulsions in man.

Action in some form relieved tension: man sought to escape from the prison of his social environment. Any prolongation of stress, any delay in the adaptive process was damaging to mental and physical health, and could even, it seemed, shorten life. It could also be argued that a neurosis was therefore preferable to continued stress.

Prof. R. W. GERARD (Ann Arbor) proposed a transliteration from the psychosocial to the neurophysiological. He pictured the build-up in the nervous system of stimuli generated by maintained uncertainty, leading to reverberation and the continued passage of messages round looped systems. If such stimuli went round long enough they became permanent. Such a process could contribute to learning. Hamsters who had found their way through a maze would remember and benefit from their experience only if they were given time to do so. If their brains were stunned electrically immediately after the animals had explored the maze, they did not remember. When the reverberating disturbance was sufficiently great the stimulus could spread to the hypothalamus. An increasing number of cells became involved and finally the whole neurone assembly was committed, so that no cell reserves remained. At this stage, in Dr. Gerard's hypothesis, non-adaptive stereotyped behaviour predominated.

ASSOCIATION OF PHYSICIANS OF EAST AFRICA

THE annual conference was held in Nairobi, under the presidency of Dr. A. D. CHARTERS, on June 26–28.

Tuberculous Pericarditis

Dr. P. P. TURNER said that tuberculous pericarditis is common in East Africa and is commonly fatal. There is no specific physical sign, other than a friction rub. Culture of fluid from the pericardial sac is positive in about a third of the cases. Removal of fluid is often essential in cardiac tamponade and produces dramatic improvement. Dr. Turner recommends treatment with antituberculous drugs, prednisone, and intrapericardial hydrocortisone.

Ménière's Disease

Mr. J. F. JARVIS described recent work on the microchemistry of the labyrinthine fluids and the finding of a high potassium content in the endolymph. The electronystagmograph promises to widen understanding of nystagmus as a sign of labyrinthine disease.

Treatment is still largely empirical and aims at removal of the cause, palliation of symptoms, and destruction of a useless and disturbing labyrinth.

Allergic Dermatosis

Colonel H. WILLIAMSON said that in treatment of allergic dermatosis the cortisone group of drugs is outstanding; these are harmless if given judiciously. Possibly, disturbed cortisone secretion may explain the well-known association between emotional stress and allergic dermatosis.

Histoplasmosis in East Africa

Dr. P. E. C. MANSON-BAHR said that histoplasmosis has been shown to occur in East Africa in the localised, disseminated, and benign pulmonary forms. *Histoplasma capsulatum* lives in the soil in its mould phase and invades the body from dust. In Africa a large form—*H. dubosii*—has been described. In the U.S.A. histoplasmosis is not uncommon, as is evident from small epidemics of the benign pulmonary form, a high prevalence of skin sensitivity, and a high prevalence of pulmonary calcification with positive skin histoplasmin tests. In Africa all forms of the disease have been described; in East Africa Dockeray (1957) has described a localised granuloma of the pharynx, while Davies (1957) has described a fatal case of disseminated disease in a $2^1/_2$-year-old European child.

Dr. Manson-Bahr described a case of benign pulmonary histoplasmosis or "cave disease" in a European male who had visited the Amboni caves near Tanga in Tanganyika, where the floor was covered in bat guano. Fourteen days after exposure he became febrile with rigors and sweating. There were no physical signs, but he had a persistent brassy non-productive cough. Radiography showed numerous coarse miliary granulomas throughout the lungs, which persisted for six months. A histoplasmin skin test was positive. No treatment was of any avail, but the patient gradually recovered.

Stott (1954) found that of African adults in Kenya 8·5% reacted to histoplasmin, and of a group of miners from the Nyanza province 14·6% reacted. Histoplasmin surveys can be expected to reveal further evidence of this disease in East Africa.

Typhoid Fever at Mulago

Dr. J. M. VAIZEY compared the cases of typhoid fever in Mulago Hospital in 1957, when chloramphenicol was available, with the cases in 1949, reported by Musoke[1], when chloram-

1. Musoke, L. K. *E. Afr. Med. J.* 1952, **29**, 209.

phenicol was not available. The mortality was reduced from 24·5% to 7·5%, and the duration of fever and of stay in hospital by about half. Hæmorrhage and perforation remain serious complications, and in the gravely ill fluid and electrolyte balance is important. Dr. Vaizey reported the emergence of chloramphenicol-resistant strains of *Salmonella typhi*.

Duodenal Ulcer

Dr. A. A. KHAN reported that in Africans in Kenya duodenal ulcer is on the increase. It affects all income, social, and educational groups. It is a disease of young and middle-aged Africans, aged 18–40—the age-group that is likely to suffer the greatest conflicts, fears, and frustrations. As more Africans become urbanised, the incidence of duodenal ulcer may be expected to increase correspondingly.

Pulmonary Amœbiasis

Dr. L. B. NEVILL drew attention to amœbiasis in its more severe and virulent forms in Nakuru and district. Of seven cases of pulmonary amœbiasis, in five the lung was infected via the liver and in two the infection was blood-borne. In all cases treatment with emetine and chloroquine was successful.

A Malabsorption Syndrome

Dr. A. G. SHAPER said that steatorrhœa is excessively rare in Africans. He described one case, and referred to a second under investigation.

A 21-year-old Muganda presented with the "adult kwashiorkor" picture, and investigation confirmed the presence of steatorrhœa and diffuse pancreatic calcification. At necropsy he was found to have pancreatic lithiasis, a fatty liver, and secondary atrophic changes in the small bowel, testes, and adrenals.

Pancreatitis was judged to play no part in the ætiology of this syndrome. Dr. Shaper holds that diffuse pancreatic lithiasis is distinct from the parenchymal calcification of chronic pancreatitis. The term "adult kwashiorkor" almost certainly embraces conditions of widely different ætiology and should be used with caution, if at all.

Drug Allergy and Contact Dermatitis

Dr. A. HENDERSON-BEGG drew attention to the importance of history-taking in this type of case; patients who state categorically that they are taking no drugs or medicines may be found on specific questioning to be taking any of a wide variety of proprietary preparations, many of which (such as tonics, douches, contraceptives, and local anæsthetics) may not be regarded as medicines. In view of the large number of children today receiving sensitising drugs, the incidence of drug allergy may be far higher in the rising generation. Dr. Henderson-Begg described four cases—two of aspirin allergy, one of phenolphthalein allergy, and one of contact dermatitis of the forearms due to paraphenylenediamine sensitisation, with cross-sensitisation to procaine.

Occasional Survey

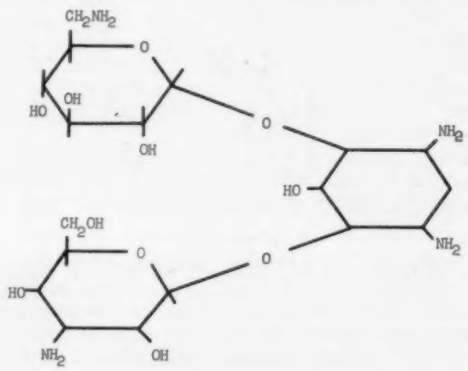
KANAMYCIN

MAXWELL FINLAND
M.D.

From the Thorndike Memorial Laboratory, Second and Fourth (Harvard) Medical Services; Boston City Hospital, and Department of Medicine, Harvard Medical School, Boston, Mass., U.S.A.

THE increasing difficulties that are being encountered in the management of resistant staphylococcal and urinary tract infections and in the retreatment of cases of tuberculosis have stimulated interest in the development of new antibiotics that might prove effective in the treatment of such cases. Kanamycin, an antibiotic related to neomycin but exhibiting considerably less toxicity, is active against most of the causative organisms in such cases and should, therefore, be of interest. A conference on the basic and clinical research of this new antibiotic was held at the New York Academy of Sciences on July 10 and 11, and this paper represents a summary of the data presented at that conference.

The conference was concerned with the soluble, basic antibiotic, kanamycin, discovered by Umezawa and his coworkers in the fermentation products of *Streptomyces kanamyceticus*. Chemically this antibiotic was shown to be closely related in its structure to neomycin and to have some features in common with streptomycin but to be clearly distinct from both; it consists of 2 amino sugars linked glycosidally to 2-deoxystreptamine. The chemical structure and physical properties of kanamycin have been almost fully elucidated and, as the sulphate, it is remarkably stable, readily soluble, and suitable for intramuscular use.



The structural formula (see figure) was presented by Cron as the one that best fits all the known data.

EXPERIMENTAL EVIDENCE

In vitro, kanamycin was shown to be highly or moderately active against many common pathogenic aerobic, gram-positive and gram-negative bacteria and mycobacteria; but some pneumococci, most streptococci, and pseudomonas were found to be moderately or highly resistant, and anaerobic organisms, yeasts, and fungi were nearly all highly resistant. Of immediate interest is its activity against pathogenic staphylococci irrespective of their resistance to other antibiotics now in common use. Its activity parallels very closely that of neomycin and of paramomycin. Resistance to kanamycin can be readily induced in staphylococci and in *Escherichia coli;* and this is accompanied by complete cross-resistance to neomycin and paramomycin and partial cross-resistance to streptomycin and certain other related antibiotics, but no cross-resistance with any of the other antibiotics that are generally available. Fresh isolates of various bacteria also show this cross-resistance among kanamycin, neomycin, and paramomycin, but streptomycin-resistant strains do not show cross-resistance to kanamycin and to the other related antibiotics. In the tubercle bacillus there appears to be complete cross-resistance between kanamycin and neomycin and one-way cross-resistance from viomycin to kanamycin.

In the usual laboratory animals kanamycin has shown relatively low acute toxicity. Subacute and chronic administration revealed toxicity that was similar to, but slightly less than, that of streptomycin and dihydrostreptomycin and much less than that of neomycin. In particular, the adverse vestibular and auditory effects occur in experimental animals after larger doses and after

longer periods of administration than with streptomycin and dihydrostreptomycin, respectively, and the renal toxicity of kanamycin is much less marked than that of neomycin and requires much larger doses given over longer periods.

Absorption and excretion from subcutaneous and intramuscular doses in animals and from intramuscular doses in human beings is rapid. Peak concentrations from intramuscular doses are usually achieved in the serum in about 1 hour and these vary with, but do not exactly parallel, the size of the dose. Exact dosage regimens cannot yet be established, but the rapid fall in blood levels indicates that intramuscular doses must be given at 6-hourly intervals in order to maintain adequate therapeutic levels, except for doses of 1·0 g. which may be given at 8-hour or even 12-hour intervals. Excretion of kanamycin is primarily into the urine and it is cleared by glomerular filtration only. About one-half to as much as four-fifths or more of the intramuscularly administered dose is accounted for in the urine within 24 hours. Oral doses are very poorly absorbed, and doses of 3–6 g. daily appear to be effective in altering the bowel flora. There appears to be no excessive binding of kanamycin to serum-protein and no evidence of cumulation. Average peak concentrations in serum from doses of 0·5–1·0 g. in adults are such as to permit inhibition of the more sensitive organisms, including staphylococci and mycobacteria, and of many susceptible but less sensitive ones (salmonella, shigella, and many strains of proteus), particularly with large doses.

CLINICAL APPLICATION

Clinical results reported here from the intramuscular use of kanamycin were highly satisfactory in a large proportion of cases of staphylococcal infections, including many severe cases in which the organisms were resistant to other antibiotics, particularly penicillin, streptomycin, and the tetracyclines. It appears to be highly effective in acute gonorrhœa in males and it was effective in most cases of severe anthrax infections. The antibiotic has also proved effective in many acute and chronic infections of the urinary tract that resisted treatment with other antibiotics, but chronic infections with pseudomonas, enterococci, and some proteus strains appear to be resistant, and failures were reported in infections with such strains and in pneumococcal and streptococcal infections.

Kanamycin given orally in doses of 4–8 g. daily was found to be an effective inhibitor of aerobic intestinal bacteria comparable to neomycin and useful in the preoperative preparation for surgery of the large bowel. It has been effective in the prevention and treatment of hepatic coma in a few patients with advanced cirrhosis of the liver in whom it has been tried and in reducing the level of ammonia in the blood of such patients; it apparently can be used together with chlorothiazide in such cases. Favourable results were also reported from intramuscular or oral therapy in some salmonella and shigella infections, but not uniformly so in severe salmonella infections or typhoid. Intraperitoneal instillation has been used successfully in established peritonitis and for peritoneal contaminations, but the possibility was raised that in some cases it may be followed by adverse respiratory effects when used in conjunction with ether or curare, although such a synergistic effect was not evidenced in dogs even with large doses of kanamycin.

In the treatment of tuberculosis, the limited experience of American clinicians employing kanamycin alone in severe chronic and resistant cases suggests only that it exerts some favourable effects on the disease, but this was not very striking and resistance to kanamycin was rapidly acquired by the organisms. Japanese experience with kanamycin given together with adequate daily doses of *p*-aminosalicylic acid (P.A.S.) in more favourable cases, and as initial treatment, indicates that the two agents together exert clinical and bacteriological effects that are approximately comparable with streptomycin and P.A.S. used in the same manner. It appears to be effective against infections with organisms that are resistant to streptomycin, isoniazid, or P.A.S. Kanamycin-resistant organisms that emerge during treatment are also resistant to neomycin, but streptomycin-resistance is not acquired in the process.

TOXIC EFFECTS

Toxic effects observed thus far have generally been mild or moderate; serious toxicity has been encountered only rarely. Local irritation from intramuscular injections has been slight and has rarely interfered with continued therapy. Sensitisation, drug fever, and drug rashes appear to be infrequent, but eosinophilia appears to be frequent in patients treated for a week or longer.

The major toxic effects are on the kidney and eighth cranial nerve. Hyaline and granular casts are seen commonly in the urine; they may appear early, usually persist throughout treatment, and generally clear some time after the treatment is stopped. This is sometimes accompanied by the appearance or increase in leucocytes and occasionally by small amounts of albumin in the urine, but only rarely by elevation of blood-non-protein-nitrogen or by oliguria. The evidence indicates that renal functional impairment, usually mild, occurs in more than a quarter of the patients, involves both glomerular and tubular function, and probably is wholly or largely reversible. Reports on kanamycin treatment of patients with initially impaired renal function are too few to judge the effects in such cases, but such treatment should be undertaken with caution; where the underlying renal impairment is related to pyelonephritis, it may actually improve if the treatment favourably influences the infection.

Vestibular damage appears to be infrequent; but loss of hearing, beginning in the high-frequency range, appears to be quite frequent on subacute or chronic administration of effective doses, especially with large doses and prolonged treatment. Tinnitus is an early and important warning sign of eighth-nerve damage. Audiometric tests should be done frequently during continuous administration, especially in patients with impaired renal function, or during prolonged treatment, or when large doses are used. There is some evidence that the deafness may not always be bilateral, symmetrical, or permanent; it always appears and reaches its height during treatment. Delayed appearance of deafness after stopping treatment was not noted, but the possibility of cumulative toxicity on retreatment must be considered.

Unlike parenteral therapy, oral administration of kanamycin is usually well tolerated even in large doses and produces no toxicity except for occasional diarrhœa.

CONCLUSION

Kanamycin thus appears to be a useful antibiotic for the treatment of certain troublesome bacterial infections. It should not be used in the treatment of pneumococcal, streptococcal, brucella, or other infections in which the results have not been altogether favourable and for which

other more effective and less toxic agents are available. Its major toxic effects on the kidney and eighth cranial nerve can probably be minimised to a certain extent by some caution in its use.

The similarities and differences in the known chemical structure of kanamycin, neomycin, and the streptomycins and in the renal and eighth-nerve toxicity which they produce offer an opportunity to explore the specific relationships between the structure of these antibiotics and the toxic effects they produce. This may lead to a better understanding of the basis of their production and possibly to means of preventing or alleviating them.

Medicine and the Law

"False" Certificates

A DOCTOR was charged at Glasgow Sheriff Court under the National Insurance Act 1946 with making false statements on medical certificates.[1]

The patient had had an operation on his right foot in June, 1957. While being treated as an outpatient he regularly called on his doctor for medical certificates, but on Dec. 7 he was sent to prison for 30 days for housebreaking.

The patient's wife then twice called on the doctor and asked for her husband's certificates, explaining that he was in bed because his foot was swollen. On the second occasion the doctor told her that he ought to see the patient before issuing the certificate. She confessed in court that she had lied because she was ashamed to admit that her husband was in prison.

It was submitted in defence that it would be outrageous to convict the doctor, who had done nothing wrong as the certificate was substantially accurate. He was acquitted.

Prison Sentence for Attempted Suicide

AT Cheltenham magistrates' court on July 17, an unemployed man of 59 was sentenced to six months' imprisonment for attempted suicide.[2]

On June 8 the police had visited the man's house and found his wife dead in bed and the man sitting in a chair with a bullet embedded in his head. He first appeared before the magistrates on June 26 when he pleaded guilty to attempted suicide and the possession of a revolver without a firearms certificate. He was remanded for three weeks to Gloucester prison for a medical report.

When he appeared before the magistrates again last week a police chief inspector said that the man had previous convictions for fraudulently drawing unemployment benefit, using threats, running away and leaving his children, assaulting the police, and committing an act of indecency. The man admitted the convictions, but said that they were due to domestic trouble.

The clerk to the magistrates said that the prison doctor's report recommended that the man should receive medical treatment, which could only be given at Coney Hill Mental Hospital, and that he should be put on probation for three years subject to his becoming a compulsory inpatient at that hospital. The man was willing to comply with this condition.

In sentencing him, the presiding magistrate said:

"We think you could have done a lot better for yourself, you know. You have not made all that effort to go straight or live honourably. We have taken into account what has happened to you domestically and also we have considered your character. We think the proper thing to do in your case is to send you to prison where you will receive the medical treatment you need."

1. *Scotsman*, July 15, 1958.
2. *Gloucestershire Echo*, July 17, 1958.

In England Now

A Running Commentary by Peripatetic Correspondents

SEEN at 7 A.M., the Wooloomooloo Private Hotel seemed to need a fire-brigade rather than a doctor. The front hall was solid with blue smoke, through which Mr. Robinson's Australian accent informed me that it was a fair cow as the kippers had exploded and set the curtains on fire while he and his wife were giving first-aid to the new lodger.

"Cut her head on the wash-basin, doin' her early-morning reducing exercises. I only wish I had some of her weight," said Mrs. Robinson, whose two most prominent anatomical features were ears. "Blood all over the new wallpaper, too—I told Fred we should have chosen the red geranium pattern. Now we shall have to move the wardrobe in front." I interrupted Mr. Robinson's disapproval of this idea by suggesting we went above cloud and saw the patient, but was told that there was no hurry as she was drinking tea and asking what there was for breakfast. I wondered whether the blow had damaged her olfactory nerves.

Led by Mr. Robinson, who resembled the Spectre of the Brocken, we stumbled upstairs in a hot vertical draught of kipper-smoke, to which each landing added contributions of onions, toast, coal-gas, and cabbage. Permeating the whole, like harp music through a full orchestra, came suggestions of cat. Charred fabrics, soot, and carbon copies of kippers fluttered about us, and shadows of inquisitive lodgers fled fearfully back into the reek at Mr. Robinson's roars of reassurance. These disembodied bellowings from the clouds produced a curiously Old Testament effect, heightened by a sudden thunderous hammering. Mrs. Robinson halted and clutched the bannister.

"Nay dammit! That's Grandad stuck in't W. again. Ah told 'im not to go without 'is teeth in." I tried hopelessly to see the connection.

"T'lock sticks if you lock it; so you've to whistle to keep folks out and Grandad can't whistle without 'is teeth so now t'lock's stuck."

"Just wouldn't it!" snorted Mr. Robinson reappearing in red-eyed fury. "An' all because that girl has to do slimming exercises to an (Australian) gramophone. From the noise she makes every morning I reckon she puts the record on the floor, holds the needle on it with one hand, an' gallops round and round it."

"Nay, I blame her young man," said his wife, loyal to her sex. "I've asked her, but she just gives me a right sad, enemetic smile like that there portrait of who-is-it . . ."

"The Mona Lisa?" I suggested.

"Too —— right, Doc!" said Mr. Robinson enthusiastically. "She's the biggest moaner in the house."

"Listen who's talking!" retorted Mrs. Robinson, adding accusingly: "Ah'll bet that tea you gave 'er 'ad sugar in it."

"O' course it —— well did. I was treating her for shock."

"She's reducing. Sugar's bad for it."

"Well aren't you a silly woman, you silly woman," shouted Mr. Robinson, shaking the bannisters. "First things come first!"

"Like I say—she was fat before she was shocked . . ."

I left them to it and entered the patient's room, where I put a dressing on a fat and dishevelled girl's scalp. After thanking me, she said, "I don't know why I get so dizzy doing these exercises."

"I do," I said, looking at the gramophone. "You're playing a 45 r.p.m. record at 78."

* * *

We medicals sometimes cock a snook at our legal colleagues steeped in precedent and advancing, as we think, from before backwards. But in the matter of space travel and moon habitation they are ahead of us. As one of my peripatetic colleagues pointed out last week the psychiatric implications of the subject are still largely unexplored, yet the American Bar already has a committee on the law of outer space. They cannot, however, shake off the earthy past altogether and quote the

Roman law of " ownership *ad coelum* " to mean extend upwards only to that point " where there is sufficient gaseous atmosphere to provide a measure of aerodynamic lift " beyond which is " *res extra commercium* ". The moon, at present " *res Nullius* ", is thus, we are told, capable of appropriation by effective occupation.

Obviously, we should give more attention to health conditions in space and less to N.H.S. conditions in this planet. Couldn't the Royal Colleges, in the intervals between examinations, set up a committee on lunar nosology? Once we colonise the moon there are certain to be public-health problems—water-supply, sewage disposal, clean air, and so on—about which we could anticipate intelligently. The first settlers, of course, should be our deaf mutes. For them the soundless satellite will have no communication difficulties. The second batch should be our bacteriologists to tend their cultures of cocci and viruses in an unfriendly land.

I have always been a bit confused about the vagaries of lunar time and temperature, particularly on the blind side. But they will provide interesting thesis pabulum for the next generation—the children who today smile at us Newtonians and are at home in this new cosmos of interchangeable matter and energy, elastic time, and curved space.

* * *

The girl had wanted a certificate to be " off work " because of the " pressures in her head ". She was the last patient and as I left the surgery feeling vaguely guilty, I wondered how I could justify that certificate.

Curiously enough I found that same evening that the answer had been provided in 1560 by St. Theresa. To Nuns who " have only a headache, but leave off going to the choir as though that would kill them ", she wrote:

" You may ask, why does the prioress give the dispensation? Perhaps if she knew your interior she would refuse, but as you inform her of your need and a doctor to whom you have said the same is not wanting to support you, and a friend or relative is weeping near, what can she do? She has a scruple lest she fail in charity, and she would rather you should be at fault than she."

How opposite to medicine. But isn't there a sting in the tail of that quotation?

* * *

For most of us botany is a dim forgotten far-off thing of 1st M.B. long ago, and when our local medical society took an afternoon off from the discussion of typhoid and hookworm to visit the East African Forestry Research Organisation most of us learned for the first time of the ruthless racialism of the agricultural scientist. In demonstration of plant diseases, a detailed clinical history with attention to sources of stress was perhaps hardly to be expected, but it was strange to find neither the patient nor the disease attracting much attention. Instead the limelight was focused on the hero of the day—the resistant race. Some judicious matchmaking followed, and by the third or fourth generation a paragon appeared—resistant yet fruitful to live happily ever after.

Pondering on the possible application of such methods in human disease, I could picture the totalitarian countries forging ahead while the democracies rely on such half measures as a subsidised bride-price in cases approved by the Minister.

* * *

Looking round at my colleagues the other day, all of them M.—B., D., CH., S., R.C.S., or R.C.P., it struck me that there was room for yet another qualification. There is one which I could, in all modesty and with a clear conscience, bestow on myself—M.N. (Nullorum Magister, or Master of None). Surely that would be an appropriate recognition for the hours of house-painting, plastering, wallpapering, gardening, cooking, baby-minding, washing up, carpet-laying, and car-tinkering which we all add to our more academic activities in these days of widening horizons and shrinking specialties.

* * *

I hear that surgical caffeine-addicts are now trying to get their elevenses past the auditors by describing them as " opaque media " or " nutrient broth ".

Letters to the Editor

THE PLACE OF THE RESEARCH INSTITUTE AND THE ADVANCE OF MEDICINE

SIR,—Although Sir Charles Harington's Linacre lecture [1] is most impressive in its range and understanding, I think there is one point of criticism of research institutes which he mentions briefly but does not answer—that research units withdraw the younger workers from university teaching.

It is common ground that the research institutes require well-trained workers. If the interests of university and research institutes conflict, Sir Charles suggests that those of the university should come first. I do not think this is achieved by present policy.

The most important part of the training of medical research-workers in this country is the course for an honours degree—for the Natural Science Tripos, Part II, at Cambridge, the Final Honours School at Oxford, the B.Sc. Special at London, and similar courses in the English provincial and some of the Scottish universities. For such a course it is essential to have at least half a dozen first-class university teachers to teach a variety of aspects of the subject. These teachers must have sufficient research experience to have the respect of their pupils, some personal acquaintance with the borderland of knowledge, and the mental agility to meet a student in tutorial work on his own ground. This last, alas, tends to disappear with increasing eminence and advancing years.

It is extremely difficult to get such teachers and to keep them. The attractions of research institutes include better laboratory equipment and facilities, more time for research, more technical assistance, freedom from correcting examination papers, and, in practice, better pay. In addition, there is the prospect of becoming a head of a department by returning to the university in due course. It is not surprising that an appreciable number of these men leave universities for research institutes.

In return, the universities are offered men from research institutes whose sources of inspiration for research have dried up, and professors of eminence who have had no teaching experience at all, or none for the last ten to fifteen years. While Oxford and Cambridge will no doubt continue to retain the tutors and supervisors they need, it is difficult for other universities to provide counter-attractions. It seems that the supply of scientific manpower is limited, and that the share likely to reach the basic medical sciences is not likely to increase.

I would therefore suggest to those responsible for long-term planning that research institutes should cease to recruit staff at or before PH.D. level, and that it should be exceptional to appoint anyone to established staff unless he had at least five years' teaching experience. This would make the re-exportation to universities of both unsuccessful and the most successful research-workers rather easier. As a longer-term measure, I suggest that, instead of building further isolated research institutes, every effort should be made to site research units within universities and that their staff should take part in the teaching of undergraduates at honours level. There are difficulties in this proposal, but in some universities they have been successfully overcome.

Department of Physiology,
University of Edinburgh. D. WHITTERIDGE.

1. *Lancet*, 1958, i, 1345.

HAZARDS OF CHLOROTHIAZIDE THERAPY

SIR,—Chlorothiazide (' Saluric ') is now being extensively prescribed in general practice, for there can be little doubt as to its efficacy as a diuretic. Certain precautions are, however, required in its use and our experience in a large hypertensive clinic suggests that prescribers are not always aware of the potential dangers of the new drug.

Chlorothiazide under some circumstances causes a considerable diuresis of potassium in addition to that of sodium. If the potassium is not replaced this can rapidly lead to hypokalæmia and symptoms of muscular weakness. Hypokalæmia also potentiates the effect of digitalis derivatives and signs of digitalis overdosage may occur in digitalised patients given chlorothiazide. Ideally, the plasma-potassium concentration should be followed serially during treatment, but in practice the administration of 3 g. of potassium chloride on the days when chlorothiazide is given would appear to obviate the risk of the development of hypokalæmia. If, however, renal failure is present potassium chloride should not be given unless the plasma-potassium concentration can be followed at short intervals.

Chlorothiazide also potentiates the action of the hypotensive drugs mecamylamine and hexamethonium, and an excessive fall of blood-pressure may occur if chlorothiazide is given to a patient whose blood-pressure is already adequately controlled by ganglion-blocking drugs.

We feel that these hazards of chlorothiazide therapy are not sufficiently widely appreciated.

Medical Unit, University College Hospital Medical School, London, W.C.1. M. L. ROSENHEIM
E. J. ROSS.

N.H.S. STAFF COLLEGE

SIR,—As Dr. Fielding (July 12) referred to the Administrative Staff College of King Edward's Hospital Fund for London, a reply from me may not be out of place. This staff college, of which I am chairman and which opened in 1951, has been endeavouring to do just what Dr. Fielding advocates—to create " a working partnership between medical, nursing, and lay personnel . . . to define each partner's proper sphere of activity, and to infuse that sense of common purpose which the service so badly needs ".

The college has never aimed at providing refreshment solely for " lay " administrators. Doctors have attended many of the courses planned for senior administrative officers, and courses have been held for physician-superintendents of mental hospitals, for finance officers, and even for hospital chaplains. Meetings are arranged with the nurses attending the Fund's colleges for ward sisters and for matrons. The possibility of offering a " mixed " course—doctors (and not just hospital doctors), nurses, and " lay " administrators—has been discussed, and even a short conference of chairmen of hospital management committees is in contemplation.

The courses are all residential and discussion is the rule rather than formal lectures. Many hundreds of administrative officers have passed through these staff colleges, and there is reason to believe that most, if not all, have benefited from the experience. The colleges are not large—a discussion group of about a dozen seems best—so the numbers dealt with at any one time have to be restricted; nor can the Fund cater for the whole of the country. Our ideas as to the future of the staff college are by no means fixed; so the Principal will welcome inquiries from interested doctors. His address is Hospital Administrative Staff College, 2, Palace Court, London, W.2.

King Edward's Hospital Fund for London, 34, King Street, E.C.2. WILSON JAMESON.

RADIATION HAZARD IN ANTENATAL RADIOGRAPHY

SIR,—Dr. Dempster (July 19) is to be congratulated on undertaking a prospective study of radiation hazards in antenatal radiography: it is to be hoped that others will follow his example, thus accumulating the really large body of data which is necessary for study by this method. In the meantime we would like to point out that a negative result obtained from a ten-year follow-up of 116 live-born infants in no way conflicts with the findings of our own survey, recently published in full.[1]

The proportion of infants born in 1948 who died of malignant disease before reaching their tenth birthday is probably below 0·8 per 1000. If a typical pelvimetry examination doubles this risk, the odds against finding even 1 case in a sample of 116 would be nearly 5 to 1.

ALICE STEWART
J. W. WEBB
D. HEWITT.

Department of Social Medicine, Oxford University.

BONE-MARROW TRANSPLANTATION IN BLOOD DISEASES

SIR,—Your leading article last week refers to the immunological obstacles encountered in this form of treatment. To a certain extent the position has been clarified since the Boston conference and there now appear to be two separate problems.

Rejection of the graft by the host occurs when enough immunologically competent cells remain after the onslaught of both disease and treatment. The problem here is to discover an agent capable of destroying all the neoplastic cells as well as the native immune-reactive cells, and although this may seem a distant prospect there is, perhaps, one source of hope. Hitherto, the effect of any form of therapy has depended on exploiting a difference between neoplastic and normal tissues of the same sort—i.e., leukæmic cells versus normal marrow or lymphoid cells—whereas now the difference is widened and lies between neoplastic cells and susceptible normal cells of other organs (e.g., intestinal mucosa), since one can afford to destroy all normal hæmopoietic cells. This is a biochemical challenge.

In the long run, however, the graft-versus-host reaction may be of greater importance. A rejected graft can, perhaps, be replaced, but a rejected host will die of secondary disease. The solution here, as indicated by the work of Medawar and his colleagues, lies in the use of fœtal material which may by virtue of " adoptive tolerance " accept an antigenically different host. Both Barnes et al.[2] and Uphoff [3] have published experiments demonstrating survival with fœtal tissue in strain combinations where adult tissue regularly causes fatal secondary disease.

That fœtal cells can be safely used in man was demonstrated in one case by Thomas et al.,[4] and we have similarly treated seven cases without fatality. In one case at least there appears to be evidence of a " take " as judged clinically, by serial marrow biopsies, and by the presence of circulating foreign erythrocytes. Details will be reported in due course.

Meanwhile two further points deserve attention. Not all histocompatibility barriers in mice can be overcome

1. *Brit. med. J.* 1958, i, 1495.
2. Barnes, D. W. H., Ilbery, P. L. T., Loutit, J. F. *Nature, Lond.* 1958, **181**, 488.
3. Uphoff, D. E. *J. Nat. Canc. Inst., Wash.* 1958, **20**, 625.
4. Thomas, E. D., Lochte, H. L., Jr., Wan Ling Chu, Ferrebee, J. W. *New Engl. J. Med.* 1958, **257**, 491.

by using fœtal tissue (Uphoff, personal communication). What then are the equivalent distinctions in man? Are they perhaps identical to the major blood-group antigens? Secondly, is it desirable to include with the marrow transplant as much lymphoid tissue as possible, in particular splenic cells, with a view to providing the means of resistance to the infections which inevitably occur in these patients? If secondary disease can with certainty be avoided the answer is yes, but it yet remains to be seen how soon fœtal cells transferred to an adult environment become capable of immune reactivity.

Royal Marsden Hospital, London, S.W.3. M. CONSTANDOULAKIS
H. E. M. KAY.

WORLD HEALTH ORGANISATION

SIR,—In his review (July 12) of the first decade of the World Health Organisation, Dr. H. S. Gear restates the principles on which the Organisation was conceived, and examines how far they have been applied. One of these principles is that membership should be universal, and Dr. Gear refers to 88 States which belong. Undoubtedly the most serious defect is that China is " represented " by the Government in Formosa. The loss is not only China's, since it is clearly undesirable epidemiologically that a vast land mass and 650 million people should not contribute to, as well as share in, international health coverage. At Geneva recently a senior W.H.O. official gave me an example from the recent influenza pandemic. The virus was first isolated in China, and had that country been a member of W.H.O. the strain, as well as early epidemiological information on the epidemic, would have been automatically made available to the Organisation. As it was, it appears that three valuable months were lost before the virus was isolated elsewhere.

London, N.W.3. P. D'ARCY HART.

WORKING PARTY ON HOSPITAL MEDICAL STAFFING

SIR,—The consultants and specialists of the regional-board hospitals note with concern that the working party to inquire into the staffing of hospitals does not contain a direct representative of the provincial non-undergraduate-teaching-hospital staffs. Most of the hospital work in the country is done in regional hospitals, whose staff comprise the greater proportion of the nation's specialists. Most of the problems involved in staffing at consultant and registrar level concern these hospitals. It is our earnest hope that every endeavour will be made to take evidence from the staffs of such hospitals in order that the problems involved may be effectively solved.

It is possible that the extent of staffing difficulties and the pressing conditions which have led to the present situation have never been fully realised, because those at the helm on various consultant committees have been trained and work mainly in teaching hospitals where the conditions of service are different and more leisurely. The turnover of patients, both emergency and routine, is higher in the regional-board hospitals. Members of non-teaching hospitals have contributed generously to the success of the regional hospital service, but the " slack " in their establishments was taken up years ago and new consultant and registrar establishments are overdue.

HAROLD DODD
President, Regional Hospitals Consultant and Specialist Association.
London, W.1.

CRASH-HELMETS

SIR,—During the past weeks there has been a good deal of correspondence in your columns about the relatively small number of people killed and injured while boxing; yet all the time far more people are involved in motor-cycle accidents. Time and again the story is the same: boys and young men brought into hospital with head injuries so severe that it seems impossible that they will ever recover (in fact many do not)—and all this very largely because they were not wearing crash-helmets. Surely, Sir, to make a motor-cyclist wear a crash-helmet is no more an infringement of his personal liberty than it is to make an industrial worker wear protective clothing or to make a ship's passengers do boat-drill. If these young men will not take reasonable precaution to protect themselves of their own accord they must be made to do so by the community. The law would be easy to enforce—one warning and then a summons.

Worthing Hospital, Sussex. P. J. G. SIMONS.

TRANSAMINASE ACTIVITY IN LIVER DISEASE

SIR,—We have read the two papers on this subject in your issue of June 14, and as neither of them refers to the work published by us since April, 1955, on the diagnostic value of serum-transaminase activity in virus hepatitis, may we briefly summarise our contribution to the argument?

Since our first papers [1,2] appeared we have been able to demonstrate that in virus hepatitis: (1) both the aspartic- and alanine-ketoglutaric transaminase (that is to say, glutamic-oxaloacetic and glutamic-pyruvic) activities of the serum show a remarkable increase (twenty to forty times); (2) the ratio (aspartic-ketoglutaric/alanine-ketoglutaric) becomes strongly inverted, falling from the normal mean value, in healthy subjects, of 1·24 to a mean value of 0·64; (3) this pattern is typical of virus hepatitis and is not generally found in any other of the hepatic, icteric, and anicteric diseases investigated (bacterial hepatocholangitis, hepatic cirrhosis, the liver of congestive heart-failure, occlusive jaundice, &c.); (4) the aspartic-ketoglutaric/alanine-ketoglutaric ratio remains persistently inverted during recovery, when the absolute values of the serum-transaminase activities again reach almost normal levels, so that a retrospective diagnosis of virus hepatitis is often possible.

All our subsequent findings,[3–6] as well as those of other workers, have confirmed our original statements.

The inverted ratio can also be found in rare cases of occlusive icterus, hepatic neoplasm, and hepatic amœbiasis, but without the high enzyme activities of virus hepatitis, so that the enzyme pattern we described remains a valuable diagnostic test in this disease.

The first data of Wróblewski and LaDue [7] on serum-transaminase activity in virus hepatitis were published in September, 1955—several months after our first papers—and dealt only with the aspartic-ketoglutaric transaminase. Previously Wróblewski and LaDue [8] reported high aspartic-ketoglutaric-transaminase activity in clinical and experimental hepatic damage, but no numerical data were published, and no connection was mentioned with the diagnostic value of this determination in virus hepatitis. Only in later papers [9–11] did

1. De Ritis, F., Coltorti, M., Giusti, G. *Boll. Soc. ital. Biol. sper.* 1955, **31**, 394.
2. De Ritis, F., Coltorti, M., Giusti, G. *Minerva Med.* 1955, **46**, 1207.
3. De Ritis, F., Coltorti, M., Giusti, G. *ibid.* 1956, **47**, 167.
4. De Ritis, F., Coltorti, M., Giusti, G. *Rec. Progr. Med.* 1956, **20**, 533.
5. De Ritis, F., Coltorti, M., Giusti, G. *Science*, 1956, **124**, 32.
6. De Ritis, F., Coltorti, M., Giusti, G. *Clin. chim. acta*, 1957, **2**, 70.
7. Wróblewski, F., LaDue, J. S. *Ann. intern. Med.* 1955, **43**, 345.
8. Wróblewski, F., LaDue, J. S. *J. Lab. clin. Med.* 1954, **44**, 958.
9. Wróblewski, F., LaDue, J. S. *Proc. Soc. exp. Biol., N.Y.* 1956, **91**, 569.
10. Wróblewski, F., LaDue, J. S. *Ann. intern. Med.* 1956, **45**, 801.
11. Wróblewski, F. *Arch. intern. Med.* **100** 635.

Wróblewski et al. deal with alanine-ketoglutaric transaminase as a more sensitive index of hepatic damage. We feel therefore that it is unjust to attribute to Wróblewski and his colleagues the discovery of the diagnostic value of the serum-transaminase activities in virus hepatitis.

We should like to draw the attention of Dr. O'Brien and his colleagues (June 14, p. 1245) to a report [12] on both the transaminase activities and their ratio, on phosphoglucomutase activity, and on fumarase activity as indices of the effectiveness of prednisone therapy in virus hepatitis.

FERNANDO DE RITIS
MARIO COLTORTI
GIUSEPPE GIUSTI.

Institute of Medical Pathology, University of Naples.

NO MORE NEOLOGISMS?

SIR,—We must all sympathise with Mr. Norman Lake's dilemma. Nevertheless his conclusion, at least as reported in your columns (July 5, p. 40), that the addition of the new word "hæmorheology" to medical jargon is justified must not go unchallenged. The term seems to have been invented by Dr. A. L. Copley, and again to quote your report of the meeting at Charing Cross Hospital, covers "the deformation and flow—i.e., rheological—properties of cellular and plasmatic components of blood in macroscopic, microscopic and sub-microscopic dimensions and the rheological properties of vessel structure with which blood comes in direct contact".

The subject as defined by Dr. Copley has been studied before, not entirely without success, by such men as Harvey, Malpighi, Lister, Krogh, and Florey, to name only a few. As far as I can recall they did not find that in order to study what was happening to the blood-flow in relation to the vessel wall a new term was necessary. Why then should it be needed now? Is it to clarify or to obscure? Unfortunately the latter is the only tenable conclusion.

This issue is so trifling in itself that I would not have bothered to raise it were it not that this is no isolated instance. It is merely a rather striking example of a growing tendency among medical and other scientific writers to obscure their own thoughts and to hide them from other people by clothing them in unnecessary jargon. Thus, a paper by a very talented scientist and writer who is a personal friend of mine contains the following sentence: "A rate of infusion of 15 mg. per kg. per hour (of chlorothiazide) *induced natriuresis, kaluresis, chloruresis and bicarbonate excretion.*" Now the unfortunate scientist who is not a renal physiologist cannot find these words in a dictionary; unless he knows Greek he cannot be sure of their meaning, and even then it can only be a guess. Why did not he write "increased the excretion of sodium, potassium, chloride, and bicarbonate". It would have been no less accurate, rather shorter, and easily understood by all. The reason was clearly that he fell unthinkingly into one of the bad habits of the time. As to why this bad habit has arisen at all is a question which perhaps you may allow me to discuss in your columns on another occasion.

Now this is a very serious problem, the more serious perhaps because it is so little ventilated. It is the ancient and honourable objective of men of science to discover scientific truth by observation and experiment and to make it known. The introduction and use of unnecessary scientific jargon seems to me to be flatly opposed to this objective. Is it too much to hope, Sir, that your journal, which has so often given a courageous lead in the past, should declare that in the future it intends to uphold the dignity and purity of the English language and not to allow the use of technical neologisms unless they are clearly defined and an unanswerable case made out for their use.

Oxford. GEORGE PICKERING.

SIR,—Reading in *The Lancet* during 1957 only those articles likely to interest a general physician, I came across the following words, which appear neither in the *Concise Oxford Dictionary* nor in the latest (1957) edition *Stedman's Medical Dictionary:*

Allergology	polypectomy	rhabdomyolysis
centrencephalic	pathophysiology	transfusionists
oxalosis	cholangiolitis	centrizonal
chylomicra	neurosophical	thoracologist
ephebiatrics	dysraphicus	histogram
ataractics	undervascularised	ataralgesia
algometer	cardiomyopathy	pulhestibs
hypohyperparathyroidism		

In addition, the following words, though listed in Stedman, would be difficult to justify:

Cholestasis	defibrillation	normovolæmic
antigenicity	anæsthetologist	phlebarteriectasis
hyposthenuria	uricosuric	angiology
angiolymphitis		

Stedman's Dictionary now contains 1656 large pages. Since the 1953 edition, over 4000 new words have been added—nearly 3 new words a day. When is this verbal flood going to abate? You, Sir, have added to the deluge, but I plead with you not to allow any further new words to appear in *The Lancet* unless a very good case can be made out for them.

Some new words are merely ugly cacophonous polysyllabic accretions, more appropriate to German than to English. Many other new words have been perpetrated because the writer has been leaning over backwards to avoid the suffix "itis". It is true that "itis" in Greek signifies inflammation; but by "inflammation" the Greeks referred to any lesion which produced either swelling or redness or heat—any one and not necessarily all three. Examiners, it seems to me, are especially prone to ill-justified quibbling over the suffix "itis"; and a well-known textbook, after insisting that the term "retrobulbar neuritis" be reserved for inflammatory lesions, mentions that "an optic neuritis is secondary to a retinopathy". The time is ripe for an agreement that "itis" implies "a lesion of", not necessarily an inflammation. Otherwise future journals will add still more needless new words to spondylosis, neuropathy, retinopathy, chelosis, myelopathy, &c.

Some writers have replaced the prefix "a" (or "an") meaning "without" by "hypo", which implies a diminution rather than a complete absence; thus hypoxia, hypalgesia, &c. But we all realise that complete absence of anything is rare in clinical medicine.

Surely language is determined largely by common usage, and new words should not be invented purely on etymological grounds—which are often inaccurate.

London, W.1. M. H. PAPPWORTH.

*** Were we to insist, as Sir George Pickering suggests, on an "unanswerable" case before admitting a technical neologism to our columns, we should be putting what seems to us an unreasonable constraint on contributors; and if we adopted Dr. Pappworth's relentless standards, we had better put on our contents page "no neologisms allowed". Rightly or wrongly, we judge the ones that come before us less strictly than either of our correspondents, in the belief that the construction of a new word is sometimes a praiseworthy, though not always successful, attempt to improve communication. Some of the words

12. De Ritis, F., Coltorti, M., Giusti, G. Atti del 57° Congresso della Società Italiana di Medicina Interna; p. 114. *Clin. chim. acta* (in the press).

mentioned in the preceding letters are clearly less acceptable than others; but some in Dr. Pappworth's list (ephebiatrics and ataralgesia, for instance) were coined for a clear purpose and are, we think, justifiable, though tentative, creations. In the centenary year of Darwin's *Origin of Species*, it seems only decent to allow a little scope to Natural Selection.—ED. L.

SMALLPOX VACCINATION

SIR,—I have used the antecubital site for vaccination for more than ten years, and to the advantages mentioned by Professor Saunders (June 28) I would like to add one which, next to the cosmetic effect, appeals perhaps most to patients—that they can lie down in a bath resting the elbow on the sponge tray. Furthermore, it is possible to sleep on that side; and the site is more easily protected in crowds, and is out of the way of those hearty fellows who greet one with an affectionate squeeze of the upper arm. The only disadvantage is that in the case of a severe reaction the sling must be adjusted so that the angle of the elbow-joint is obtuse—a right-angle or less impedes the flow both in the veins and in the lymphatics.

London, W.1. E. G. HUXLEY COWEN.

5-HYDROXYINDOLEACETIC ACID IN STEATORRHŒA

SIR,—In your report of the meeting of the American Gastroenterological Association (June 21, p. 1313) you quote the statement that the urinary excretion of 5-hydroxyindoleacetic-acid (5-H.I.A.A.) is increased in the patient with idiopathic steatorrhœa in relapse, but not in other types of steatorrhœa. If this is confirmed it will be most helpful in the diagnosis of this condition; but a sprue-like state has been described in the carcinoid syndrome,[1] and I have recorded a case of idiopathic steatorrhœa, in which the diagnosis was confirmed by jejunal and ileal biopsy, with a normal urinary excretion of 5-H.I.A.A.[2]

Groote Schuur Hospital, Cape Town. DENNIS M. KRIKLER.

DIASTOLIC PRESSURE AND MALIGNANT HYPERTENSION

SIR,—We have studied a group of 284 unselected hospital inpatients with hypertension, according to two scales of pressure: (1) a scale of diastolic blood-pressure (D.B.P.) divided into 6 "levels" of 15 mm. Hg each, ranging from 85 to 160 mm. and over; and (2) a scale of diastolic age-sex-adjusted-score (D.A.A.S.),[3] divided into 6 "degrees" of 15 mm. each, ranging from 0 to 75 mm. and over. These two scales were correlated with the degree of change in the optic fundus, according to Keith, Wagener, and Baker; and with the frequency of electrocardiographic left ventricular hypertrophy, congestive cardiac failure, electrocardiographic coronary damage; and cerebrovascular accidents. The ætiology of hypertension was not considered in this study.

In the D.B.P. scale 22% of the cases were over 130 mm. (4th level). 26·5% of those with the malignant type of fundus were under 130 mm. 83·3% of patients over 160 mm. (6th level) had the malignant type of fundus, and none of the patients over 160 mm. had a normal fundus.

These figures were different in the D.A.A.S. scale. 34·5% of cases were over 45 mm. (4th degree), and only 10% of those with malignant type of fundus were under 45 mm. Only 46% of patients over 75 mm. (6th degree) had the malignant type of fundus; and 16·6% of cases over 75 mm. had a normal fundus.

According to this study, a diastolic pressure expressed in D.A.A.S. of 45 mm. Hg (4th degree) marks the start of the malignant phase. This level is more accurate than the classic D.B.P. level of 130 mm. The following table gives this malignant incipient level in D.B.P. by age and sex:

Age:	*Men*	10–13	14–25	26–38	39–51	52–70	71–84	..
	Women	..	10–23	24–34	35–43	44–54	54–64	65–84
D.B.P. (mm.Hg.)	..	110	115	120	125	130	135	140

The D.A.A.S. makes it possible to identify patients with malignant hypertension before changes are evident in the fundus and before left ventricular hypertrophy develops. It also allows the significance of high blood-pressure to be assessed in old people.

The frequency of congestive failure and of left ventricular hypertrophy is related directly to the increase in diastolic pressure. The frequency of the electrocardiographic coronary changes and of cerebrovascular accidents is not related to that increase.

Aguirre Hospital, University of Chile. RICARDO CRUZ-COKE.

INTESTINAL ANGINA

SIR,—It is surprising to me that Dr. Whiteside's letter of June 21 has passed without comment. I believe that upper abdominal pain or discomfort or feelings of distension are not uncommon symptoms of ischæmic cardiac disease.

Recently, one of these patients described her symptoms rather aptly, saying: "When I walk fast I feel that I have too much air in my stomach, and none at all in my chest." She located her "stomach" about the centre of the epigastrium.

A few months ago I saw an intelligent 38-year-old man who complained of a transient oppressive pain following severe exertion. Electrocardiography suggested a small anterior cardiac infarct. He was quite adamant that the location of his pain was not alone below the xiphisternum but was actually subumbilical.

Limerick. R. HOLMES.

DEATH OF A BOXER

SIR,—I do not recollect that any of your correspondents so far has drawn a distinction between amateur and professional boxing. When I was a member of my university boxing club 28 years ago the duration of an amateur contest was limited to three 2-minute rounds. There is a vast difference between this and the professional contest of ten to fifteen 3-minute rounds towards the end of which muscular fatigue of the neck and trunk muscles must reduce the defence to a blow on the head. Amateur boxing was then, and I presume still is, carefully controlled by a referee and two judges. In my experience where there was an obvious discrepancy in skill the contest was speedily stopped.

The suggestion of Dr. Pakenham-Walsh (June 21) that because boxing is taught in schools and boys' clubs therefore professional boxing will continue to thrive seems to me a non sequitur. I have personally only once watched professional boxing, and left nauseated after half an hour. No doubt your correspondent draws on personal experience when he writes that wrestling is safer and more efficient, although I read a newspaper report the other day of a wrestling match in which the rival contestants were removed unconscious from the ring.

Manchester. H. STUART BARBER.

1. Waldmann, E. B., Martin, W. J., Ferris, D. O. *Proc. Mayo Clin.* 1955, **30**, 127.
2. Krikler, D. M. *S. Afr. med. J.* 1958, **32**, 120.
3. Pickering, G. W. High Blood Pressure. London, 1955.

ANÆSTHESIA FOR THE EMPHYSEMATOUS

SIR,—I should like to endorse the plea by Dr. Wynn and Dr. Brooks (July 5) that anæsthetists should have facilities for obtaining not only the CO_2-combining-power but also the pH. A CO_2-combining-power of 65 vols % at a pH of 7·35 would be compatible with normality, but a CO_2-combining-power of 65 vols % at a pH of 7·25 would indicate uncompensated CO_2 retention. This acid-base balance of the venous plasma has been illustrated previously.[1]

Hull. W. N. ROLLASON.

LONDON MEDICAL ORCHESTRA

SIR,—I would crave the courtesy of your columns to bring to the notice of the musically minded the London Medical Orchestra, who are anxious to recruit players for the coming season starting in October.

There is something particularly enjoyable in the amateur orchestra and some great figures in our profession have found it a refreshing distraction; two who come readily to mind were His and Billroth (the friend of Brahms). Moreover, the present President of the Royal College of Physicians is at times observed performing valiantly in our ranks under the proficient conductorship of Doctor Ucko.

With the help of distinguished soloists this orchestra has raised over £400 this year for the Imperial Cancer Research Fund by public concerts, and will continue to help medical charities.

Dr. E. V. Slaughter of 6, Oxford Court, London, W.3, would be glad to hear from any who are interested.

London, W.1. A. DICKSON WRIGHT
President, London Medical Orchestra.

FLAMMABLE CLOTHING

Commenting on a discussion at the annual representative meeting of the British Medical Association in Birmingham this month, Mr. S. G. WILLBY, press officer of the British Standards Institution (2, Park Street, London, W.1), writes:

It was disappointing to learn that the meeting saw fit to pass unanimously a Manchester motion expressing dissatisfaction with the report of a B.S.I. committee about flammable clothing.

It is indeed highly desirable, as Dr. Marion Reekie, who sponsored the motion, said, that manufacturers should produce attractive flame-resistant clothing at prices only a little above those of normal garments. The report urges that this should be done. But it is a fact that at present all garments worn by children—apart from those made from certain of the synthetic fibres, from heavy woollen cloths, and from a few specially treated fabrics—are liable to catch fire. Our report sought to warn parents of this fact and of the contingent dangers.

It is a delusion to suppose that there exist two ranges of fabrics, one safe and the other dangerous. There are fabrics with flame-resistant finishes on the market, but research is still proceeding to devise finishes which will outlast the washing which every child's garment must undergo. And until shoppers demand and retailers stock these fabrics their prices are unlikely to fall appreciably.

What our report did bring out was that the design of garments may be fully as dangerous as their fabric. If a child wearing a nightdress stands close to an unguarded coal fire, up-draught may well suck the garment against the fire, and the child would be burnt even though the nightdress was made of flame-resistant fabric.

The campaign for guarding fires, which has now been vigorously taken up by the Government, is not in any way a substitute for the development of flame-resistant fabrics nor a concession to human frailty; it is a step towards preserving human life.

1. Rollason, W. N., Parkes, J. *Anæsthesia*, **12**, 71.

Parliament

Doctors in Parking Meter Areas

IN the House of Lords on July 5 Earl HOWE asked the Government whether, in the rules governing the operation of parking meters in areas where they were installed, it was intended to make any special regulations to meet the needs of professional men, their clients, or their patients.—Lord MANCROFT replied: No special provision for professional men, their clients, or patients was proposed by the local authority or included in the only parking meter order so far made—which is operating in North West Mayfair. Any local authority proposing such an order may include in it such exemptions under section 21 (4) of the Road Traffic Act, 1956, as they may wish, but I cannot anticipate the decisions of the Minister on any such applications. Earl HOWE: Does not the noble Lord think that in the case of people, perhaps suffering from grave injuries, who are going to see their medical advisers, some relaxation of the parking meter regulations as they stand should be incorporated in any further order made for the same purpose?—Lord MANCROFT: My Lords, it does not actually matter what I think. What does matter is what representations are made by the local authorities to the Minister when he has heard all the interests concerned. In the case to which I have referred I understand that no representations were made, and on the only other Order (from Marylebone Borough Council) before the Minister representations were made. The matter is still under consideration.

QUESTION TIME

Security at Broadmoor

In answer to a question Mr. DEREK WALKER-SMITH, Minister of Health, said that though he had not yet received the full report of the Board of Control inquiry into the recent escape from the institution he had received a summary of their main findings. They found that the saw used by the patient had been introduced into the institution from outside. They recommended that:

(1) Search of patients after visiting days should be intensified.

(2) There should be no exception to the rule that the siren is to be sounded immediately the escape of a dangerous patient is known.

(3) The strength of the night staff on duty in the block from which Mitchell escaped should be increased at once.

(4) Alterations to the walls of the institution to increase their security at strategic points should be commenced immediately.

They have already given instructions for the implementation of these recommendations.

Expenditure on Social Services

In 1956 the Exchequer spent £1554 million on the social services, the National Insurance funds £641 million, and the local authorities £704 million. The total, £2899 million, is 17·6% of the national income. The specific grants from the central Government to the local authorities are included in the Exchequer's contribution.

Tuberculosis Beds

In the past five years the number of hospital beds in England and Wales allocated to tuberculosis has fallen by 8935.

Emergency Morphine Supplies at Docks

After consultation between the Home Office and other departments, the Home Secretary has decided, as a special case, to authorise the keeping of supplies of morphine for use by nurses in an emergency at port medical centres where suitable safeguards can be arranged.

Merit Awards

The number of merit awards in payment in England and Wales at the end of 1957 was: 276 at the rate of £2500, 690 at the rate of £1500, 1377 at the rate of £500. The total amount paid is estimated at £1,450,000 in 1949 (the first full year) and £1,960,000 in 1957.

Obituary

EDWARD WALKER BAIN

M.B. Lond., F.R.C.S.

Mr. Bain, honorary consulting surgeon to the ear, nose, and throat department of the Leeds General Infirmary, has died at his home in Arkendale at the age of 82.

He qualified from the London Hospital in 1902, and after postgraduate study in Vienna took the F.R.C.S. in 1907. He held a senior clinical assistantship in the ear, nose, and throat department of the London Hospital and was for a time assistant surgeon at the Metroplitan Ear, Nose, and Throat Hospital before he was appointed to the staff of the Leeds General Infirmary in 1912 as the first surgeon of its new ear, nose, and throat department. He was lecturer in E.N.T. surgery at the University of Leeds and he also held appointments at St. James's Hospital, Leeds, and at Castleford and Normanton. During the first world war he served as captain in the R.A.M.C., in the military hospital at Beckett Park, Leeds. He retired from his hospital appointments in 1937, but during the late war he was recalled to his old department at the Leeds General Infirmary and he worked there until 1945.

E. S. writes:

As a surgeon, Mr. Bain was careful, skilful, and deliberate. A man of few words with a most equable temperament he was always courteous and dignified. He had an extensive practice throughout the three ridings of Yorkshire, travelling far in the days of mastoid emergencies, and his advice was widely sought in consultations throughout the county.

He had many interests outside his professional work, but gardening was his chief hobby. During his later years he developed a great interest in fly fishing and he was a keen member of the Harrogate Fly Fishers Club. He retired to the country, where he spent his last few years still much attached to his gardening. Bill Bain will be mourned by all those who knew him, particularly residents and fellow consultants of the years after the first world war who will always remember his kindness and hospitality.

Births, Marriages, and Deaths

BIRTHS

WOLFSON.—On July 1, at Dudley Road Hospital, Birmingham, to Nancy, wife of L. J. Wolfson, F.F.A. R.C.S.—a daughter.

Appointments

FORREST, D. M., M.B. N.Z., F.R.C.S.: first assistant in general surgery, St. George's Hospital, London.
HOBDAY, T. L., M.B. Lpool, D.P.H., D.P.A.: senior assistant port M.O., Liverpool.
MARRACK, DAVID, M.D. Lond.: assistant clinical pathologist, National Hospital, Queen Square, London.
MURRAY, D. S., F.R.C.S.E.: part-time consultant surgeon in orthopædics, Rotherham and Mexborough hospital group.
OGILVIE, C. M., M.D. Lpool, M.R.C.P.: consultant physician, Liverpool Stanley Hospital.
PAGE, F. T., M.D. Lond., M.R.C.P.: consultant physician, Bristol clinical area.
QUINLAN, A. G., M.B. Lond., F.R.C.S.: consultant orthopædic surgeon, Scarborough hospital group and Adela Shaw Orthopædic Hospital, Kirby Moorside, Yorkshire.
SLATTERY, J. A., M.R.C.S., D.P.H.: district M.O.H., Downham Market, Downham, and Marshland, Norfolk.
TALLACK, R. J. K., M.B. Brist., D.P.H.: assistant M.O.H. and school M.O., Westmorland.

Colonial Appointments

BENSON, T. W., M.B. Lond.: M.O., Jamaica.
BERNARD, F. E. P., M.B. Edin.: M.O., Northern Nigeria.
DAVIES, H. N., O.B.E., M.B. Edin., D.T.M.: M.O., Somaliland.
DOYLE, V. T. B., M.D. N.U.I., M.R.C.P.I.: specialist, curative services division, Northern Nigeria.
ECONOMIDES, A. P., DIP. MED. Athens: district M.O., Cyprus.
GILLETTE, G. P. S., M.B. Edin., D.P.H.: medical adviser, Federation of the West Indies.
HAMERTON, J. R., M.B. Lond., F.F.A. R.C.S.: specialist anæsthetist, Uganda.
MCDOWALL, M. F., M.D. McGill, D.T.M. & H., D.C.H.: M.O. (grade A) pædiatrician, Trinidad.
MARGETSON, N. E. L., M.B. Edin., D.O.: M.O., Jamaica.
SOUTHGATE, B. A., M.B. Lond.: M.O., Kenya.
TEMPLER, M. J., M.R.C.S.: M.O., Kenya.
THOMSON, D. M. M., M.B. Brist.: M.O., Uganda.
THOMSON, M. J. C., L.M.S.S.A.: M.O., Uganda.

Notes and News

MEDICAL SCHOOL FOR RHODESIA

ON Feb. 1 we recorded some of the conclusions of the committee which is advising the University College of Rhodesia and Nyasaland on whether to set up a medical school. The full report, now published as a supplement to the June issue of the *Central African Journal of Medicine*, points out that for the supply of doctors the Federation at present depends entirely on other countries:

"Apart from there being a limit to the extent to which a country can rely on borrowed talent, on the two counts of training and supply the situation is not becoming any easier while the demand is increasing. In Great Britain there is one practising doctor to under 930 of the population; the corresponding figure in the Federation is one to approximately 13,000; but in ten years' time, if there is no considerable increase in the number of doctors, this already fantastic figure will have reached the level of one to 17,500. The number of doctors to the African population is very much less than the present over-all figure of one to 13,000—some put it at one to 37,000, and in one district at least (Mrewa) it is one to over 80,000. There is, moreover, a grave lack of full consultants to deal with the African population."

"In two respects in which the medical services of the Federation are particularly at fault—maldistribution of medical personnel and lack of junior resident medical officers in hospitals—the advent of a medical school could bring about an immense improvement."

A new school should, it is suggested, be established within the next two or three years, with clinical teaching at the (suitably developed) African hospital at Harari, 7 miles from the University College at Salisbury. It should at first have an intake of 25 students a year, and the course should lead to a qualification registrable by the General Medical Council.

The members of the committee are Mr. L. Farrer-Brown (chairman), Prof. W. M. Arnott, Prof. T. H. Davey, Prof. A. D. M. Greenfield, Prof. P. B. Medawar, Dr. Honor Smith, and Prof. R. Milnes Walker.

PIERCY'S RELIQUES

THE Minister of Health and the Secretary of State for Scotland have sent memoranda [1] [H.M. (58) 57 and S.H.M. 58/54] to the hospital authorities drawing their attention to points in the report of the Interdepartmental Committee on the Rehabilitation, Training, and Resettlement of Disabled Persons.[2]

The Minister asks the English boards to review their facilities and to consider what reorganisation may be desirable. He suggests that they may find it convenient to begin by concentrating on two or three selected areas in their region. The matters which he would like to see included in the review are the general supervision and coordination of facilities; the assessment of disability; and the need for additional facilities, such as sufficient space for active physiotherapy, or, in the occupational-therapy department, for simple factory work or training for adjustment to home conditions. In rural areas there may also be need for residential accommodation for selected patients who need a planned and fairly active convalescence.

The Scottish report necessarily covers much of the same ground. Also it suggests that each region should have at least one consultant who would give most, but not the whole, of his time to the rehabilitation service. "He might advise the regional hospital board, be available to the specialists for consultation in difficult cases, and in his own unit undertake to pioneer the development of rehabilitation services". The Department of Health looks forward to the time when every major general hospital will have a rehabilitation department offering the full range of hospital facilities to outpatients. A practical start, it thinks, might be made now with an experimental comprehensive rehabilitation and assessment centre.

The Minister of Health in a memorandum to local authorities [3] says that, in view of the Piercy Committee's recommenda-

1. See *Lancet*, 1956, ii, 986.
2. See *ibid.* 1956, ii, 986.
3. Circular 16/158.

tion that local authorities should be given more help from central funds for the development of their welfare services for the disabled, an allowance for this purpose will be included in the general grant which it is proposed to substitute in 1959–60 for the present specific grants. The Minister also asks authorities who are not yet providing welfare services for the handicapped to reconsider the position. He is aware that many of them are supporting the provision of these services by voluntary organisations, but he is satisfied that when the authorities themselves undertake this responsibility (in full cooperation with the voluntary organisations) more complete and uniform services can be given.

The Minister especially supports the Piercy Committee's recommendations for more hostels for the tuberculous and for convalescent mental patients and for short-stay accommodation for the elderly.

DENTAL ANCILLARIES

THE shortage of dentists is described as "universal", and in no country is the dental profession increasing as fast as the population. On the other hand, experience has shown that, by delegating part of their work to trained assistants, dental surgeons can look after many more people. For this reason the W.H.O. Expert Committee on Auxiliary Dental Personnel, at their meeting held in Geneva at the beginning of this month, laid stress on the need for dental-health teams, each supervised by a dentist using two or more assistants highly trained but in a limited field. Such teams (the committee think) could be introduced with advantage into the established dental programme of economically advanced countries as well as in building up services in areas which at present have little or no dental care.

Among the auxiliaries in the team, the committee include chairside assistants, dental technicians, dental hygienists, and school dental nurses; but they recognise that the training and employment of such personnel will need to be graduated according to the particular requirements of the area. Since the auxiliaries—of whatever kind—must work under the direction of fully qualified dentists, who take responsibility for what they do, the committee recommend that attention should be given to the education of dentists in utilising the help of assistants.

For areas where there is at present no professional dental service the committee propose the training of a special type of personnel. At first, perhaps, these could do no more than relieve pain and cope with emergencies; but they would also work in teams, and their training would be planned to allow for additional and continuing education as the service develops.

The following are among the figures supplied to the committee by the International Dental Federation:

Country	*Number of qualified dentists*	*Population*	*Ratio*
Australia	3900	2,125,000	1 : 2250
Canada	5564	16,589,000	1 : 2981
Germany	33,694	52,521,300	1 : 1559
Indonesia	300	80,000,000	1 : 270,000
Netherlands	2500	11,000,000	1 : 4400
South Africa	1250	13,500,000	1 : 10,800
United Kingdom ..	16,000	51,200,000	1 : 3792
United States of America	90,000	173,000,000	1 : 1900

Participating in the committee were Dr. J. Llewellyn Saunders (New Zealand), chairman; Dr. James Deeny (Dublin); Dr. A. I. Doinikov (Moscow); Dr. A. Maxwell Horsnell (London); Dr. O. K. Oswald (Gothenburg); Dr. Shailer Peterson (Chicago); and Dr. C. J. Sundram (Penang).

LIGHT DIETS IN HOSPITAL

THE Hospital Catering Advisory Service (King Edward's Hospital Fund for London) has issued a memorandum on "Light Diets". This term is vague and undesirable, but is still commonly used in hospitals to denote diets which are nutritious and easily digested but at the same time varied and tempting. Suitable recipes for soups, main dishes, puddings, and sauces are included.

Copies may be had from the Fund, 34, King Street, London, E.C.2 (1s. post free).

University of London

The title of professor of pharmacology and therapeutics has been conferred on Dr. R. S. Stacey in respect of his post at St. Thomas's Hospital Medical School, and the title of professor of pharmacology on Dr. Eleanor Zaimis in respect of her post at the Royal Free Hospital School of Medicine. The title of professor emeritus of physiology has been conferred on Prof. K. J. Franklin on his retirement from the chair of physiology at St. Bartholomew's Hospital Medical College.

University of Edinburgh

On July 17 the following degrees and diplomas were conferred:

M.D.—D. L. Gardner (highly commended); E. V. B. Morton, J. G. Sommerville (commended); * J. P. Baird, D. S. Harling, R. D. Young.

* In absentia

Ch.M.—H. A. F. Dudley (gold medal); J. A. L. Clark (commended).

Ph.D.—E. O. Eranko.

M.B., Ch.B.—Liselotte Adler, F. S-L. Ip, W. J. Irvine, B. B. Porter (honours); Margaret E. Abel, E. G. Anderson, T. Y. Anderson, Michael Andrews, A. D. E. Atukorale, Keith Ballentyne, Jean E. Banyard, J. D. Bell, D. G. Binns, Roelof Boersma, L. R. Carney, J. M. Cochrane, W. J. C. Conn, Alison R. Coutts, Joyce Cragg, H. A. Cumming, W. A. M. Cutting, I. A. Davidson, Elizabeth N. Dawson, J. D. Donnelly, Tessa N. Dyke, Peter Edmond, Jenny R. Elder, J. G. Fegler, R. A. Findlay, M. H. Finlayson, E. P. Friday, Heather S. Fulton, J. M. Gale, J. B. Gallacher, R. K. Galloway, P. J. Garwood, Willa M. Glover, A. S. Goldstein, James Gollan, E. B. Gordon, Norman Gordon, Christopher Gracie, P. J. S. Hamilton, Marian Hardman, William Hately, B. M. Henderson, Elsie M. Hendry, D. J. Henry, J. A. Hood, G. R. Hopkinson, J. E. Hugh, Nesta B. James, P. D. F. James, J. C. Jenkins, Ronald Kilgour, Dorothy A. Lai Fook, Christine G. Laing, C. A. R. Lamont, William Leadbitter, D. J. Levy, R. B. Levy, K. T. Lim, J. M. McArdle, T. R. McCall, Florence M. McCallum, Harry McDonnell, G. A. McEwan, Katherine H. McEwen, R. S. McGregor, C. L. K. McIlwaine, Gordon Mackay, Janette Millar, J. M. Miller, A. R. Milne, A. R. K. Mitchell, Kathleen M. Moore, N. H. Munro, H. M. Murray, J. A. Ogunro, Lilian L. Orba, George Orr, W. M. Patterson, Hilda Pedersen, Christine A. Poole, R. W. Porter, I. C. F. Riach, John Roberts, Denise E. Robertshaw, D. A. R. Robertson, K. D. Robinson, I. S. Ross, Mary C. D. Ross, William Ryder, William Simpson, K. B. Slawson, Arthur Slora, A. G. L. Smith, M. B. Smith, P. L. Smurthwaite, G. J. A. I. Snodgrass, R. H. Steele, P. M. Stell, James Stevenson, V. B. Stimpson, E. I. R. Taylor, J. M. Thomas, E. G. Thomson, Hilary Titterington, D. M. Tod, W. C. Uduku, T. J. Wallace, Sadie D. Walsh, A. G. Watson, J. A. G. Watt, R. G. Weeder, J. P. Welch, D. W. Welsh, A. E. Wightman, Christine Wileman, B. J. Wiken, Joyce M. Williamson, R. S. Wilson, Evelyn Wray, David Wynberg.

D.P.H.—J. M. W. Bolt, Isabel J. Buchanan, Biharilal Chaudhuri, M. P. Hutchinson, Edith M. McLean, David Penman, J. N. Robertson, A. D. Ross, J. J. Saave, Edith Scott, J. C. M. Sharp, G. W. Simpson, J. A. K. Wallace.

D.T.M. & H.—Kollengode Ramaswamy Balasubramanian, Nariman Kekobad Ginwala, Vadakkepat Jayakumaran, Sukumar Mukherjee, Thazathuveettil Damodarapanicker Gopalakrishna Pillai, Brajbansi Prasad, Bhaskara R. Dodda, Kadavil Poulose George, Kudallur Raman Nambudiripad, Narendra Kumar Sinha.

D.M.R.D.—S. McC. Smith.

The Cameron prize was awarded to Prof. Charles B. Huggins, of the University of Chicago, in recognition of his researches on the hormonal treatment of cancer and particularly for his introduction of the treatment of prostatic carcinoma by œstrogens.

Dr. K. W. Donald, reader in medicine in the University of Birmingham, has been appointed to the chair of medicine in succession to Sir Stanley Davidson, who retires at the end of March.

Dr. Donald, who is 46 years of age, was educated at Emmanuel College, Cambridge, and St. Bartholomew's Hospital, qualifying in 1936. During the late war he served with the Royal Navy as senior medical officer with a destroyer flotilla and was awarded the D.S.O. for his work in the Narvik action. In 1942 he created the Admiralty experimental diving unit and personally conducted investigations into survival in closed spaces, resuscitation, oxygen poisoning, and carbon-dioxide intoxication. Much of his published work has dealt with high-pressure physiology and cardio-respiratory function in health and disease. After the war he returned to Barts as chief assistant in the medical professorial unit. In 1948 he spent a year in the United States with a Rockefeller fellowship, and on his return he was appointed senior lecturer in medicine at the Institute of Diseases of the Chest, Brompton. In 1950 he became senior lecturer in medicine in the University of Birmingham and assistant physician to the Queen Elizabeth Hospital. Five years later he was appointed first assistant to the Birmingham chair of medicine. He is a consultant to the Royal Navy and chairman of the Under-Water Physiology Committee. He is secretary of the Medical Research Council committee on breathing apparatus for protection against fumes and gases. He is also honorary consultant to the National Coal Board.

Dr. J. D. Sleigh has been appointed lecturer in bacteriology.

University of Durham

Dr. N. Cauna has been appointed to a readership in anatomy in the Newcastle division.

University of Birmingham

On July 17, on the occasion of the British Medical Association's conference, the honorary degree of LL.D was conferred on Lieut.-General Sir Alexander Drummond, director-general, Army Medical Services; the honorary degree of D.SC. on Dr. J. S. Mitchell, F.R.S., regius professor of physic in the University of Cambridge; and the honorary degree of M.D. on Dr. I. D. Grant, president of the College of General Practitioners.

On July 5 the following degrees were conferred:

Ch.M.—K. D. Roberts, R. W. Tudor.

M.B., Ch.B.—A. J. G. Campbell, F. J. Fawcett, Bernard Goodhead (*second-class honours*); T. R. Abbott, Ada M. Adams, Derek Atkinson, Ann I. Ballantine, A. D. Barnes, Ruth Barton, Vivien E. Basco, L. S. Bernstein, Colin Berry, J. E. Bewley, Kishan Singh Bhogal, H. E. Black, A. W. Burdon, Brenda M. Chant, A. C. Cottrill, D. C. Crawford, J. T. Davies, P. W. Davis, D. G. Emery, Sylvia D. Gardner, Catherine M. Gay, J. R. Geddes, Jean M. Gibbon, Selwyn Glick, M. G. S. Golby, I. A. Goldman, R. W. Griffin, R. G. Harrison, Frances E. Heron, M. J. Hoare, G. B. Hunt, S. E. O. Jones, Madmood Joomye, Menigha Kemmer (in absentia), A. B. Lavelle, Michael Lewis, Edna J. Lloyd, Wendy I. McNeilly, G. L. Morgan, Philippa N. Mourant, M. G. Mullan-Feroze, Kenneth Newbold, D. M. Nicoll, B. Aigbobasimi Oni-Okpaku, C. E. Oxnard, Doris H. Pereira, C. R. Phillips, P. R. Preston, Susan E. M. Richards, C. J. Roberts, R. N. Smith, D. B. Southall, Sheila M. Statham, Margaret S. Taylor, C. W. Thompson, F. R. Walford, Albert West, Nora E. Wild, T. H. Williets, P. J. Witherow, D. A. K. Woodward.

Royal College of Surgeons of Edinburgh

At a meeting of the college on July 15 with Prof. John Bruce, the president, in the chair, the honorary fellowship was conferred on Prof. Warren H. Cole and Prof. Isidore S. Ravdin. The following were admitted to the fellowship:

S. M. S. Ashraf, D. W. Blair, R. C. Buchanan, Peter Burgess, B. N. Chatterjee M. C. Chenoy, J. S. G. Clark, J. T. F. de Graft-Johnson, E. J. England, D. S. Grewal, W. F. Hasan, Grant Kerr, G. C. Liggins, John McLenachan, P. S. Mathur, Gunaratnam Muttuthamby, K. N. Nambudripad, K. J. O'Connor, S. L. Paton, G. R. A. Raad, E. F. Reye, M. C. R. Solling, J. W. W. Thomson, Mary A. T. Tolley, M. P. Trivedi, D. D. Verma, R. E. D. Williams, J. S. Winter, N. K. Yong.

Faculty of Ophthalmologists

The following officers have been elected for 1958–59:

President, Mr. L. H. Savin; vice-presidents, Mr. E. G. Mackie and Prof. G. I. Scott; hon. treasurer, Mr. A. McKie Reid; hon. secretary, Mr. E. F. King.

Royal Society of Medicine

The following have been elected honorary fellows of this society:

Mr. L. R. Broster, Dr. M. G. Candau, Prof. William B. Castle, Prof. Andre F. Cournand, Prof. Denis Denny-Brown, Prof. F. de G. d'Allaines, Prof. Herwig Hamperl, Prof. G. Miescher, Prof. Newell Philpott, Prof. Georges Portmann, and Dr. F. Parkes Weber.

Royal Society of Health

Fellowships have been conferred by this society on the following in recognition of their public-health work:

Dr. William Alcock, Dr. E. Michael Bluestone, Dr. H. D. Chalke, Dr. Richard J. Dodds, Dr. Philip Drinker, Mr. G. L. C. Elliston, Dr. J. A. Gillet, Dr. I. A. G. MacQueen, Dr. W. H. P. Minto, Dr. Pin Hui Teng, and Dr. W. H. S. Wallace.

Diagnostic Centre for South London

The London County Council have appointed Brigadier H. L. Glyn Hughes, formerly senior administrative medical officer of the South East Metropolitan Regional Hospital Board, to be medical director of the proposed diagnostic medical centre at the Queen's Road Centre, Peckham. The plans for this project were described in our issue of June 7 (p. 1214).

Carlsberg-Wellcome Travelling Research Fellowships

The Carlsberg Foundation (Copenhagen) and the Wellcome Trust (London) announce a second series of awards of these fellowships which they jointly instituted in 1957. The successful candidates for 1958–59 are Dr. S. E. Jensen and Dr. D. A. T. Dick.

Dr. Jensen of Kommunehospitalet, Aarhus, and Aarhus University, Denmark, will work in Prof. Russell Fraser's department at the Postgraduate Medical School of London on the factors affecting serum-lipoids in man; and Dr. Dick, from the department of human anatomy, University of Oxford, will work with Prof. H. Holter at the Carlsberg Laboratory on the osmotic properties of living cells.

Medical Women's International Association

Proposing the toast of this Association at the banquet in London last Monday which concluded the eighth congress, Prof. Stanley Alstead, P.R.F.P.S., spoke of the character of women as a new dimension in medicine. He was one of the host of men who say of women "How illogical: How charming! . . . How right!" The Association barred discussion of religion and politics, but not of philosophy, which brings to the world a measure of tranquillity. The philosophy of women embraced æsthetics, and æsthetic values constituted in themselves an international language.

Dr. Esther Lovejoy, first president of the Association, traced its origin partly to the work of British medical women, —including the Scottish Women's Hospitals—in the first world war. She also recalled a visit she paid, at Hastings in 1904, to Elizabeth Blackwell, the first woman doctor, who qualified in the United States in 1849. Dr. Aitken, as former secretary and now president, expressed her belief in the usefulness of the Association with its 29 member and 3 observer countries.

Prof. Robert Platt, P.R.C.P., proposed The Medical Profession.

He had been looking at passers-by in a London street, and, having been in medicine for quite a long time, had felt that he knew about the problems of many of them. How lucky doctors were to deal with this wonderful succession of people—always interesting, however exasperating they might be. The profession of medicine offered greater variety than any other, and in all its branches it was far more satisfying than ever before: "beware of people who say that medicine isn't what it used to be; it never was." In Britain it must be practised largely in the context of the National Health Service, which had still not got over all its initial troubles. "But beware of the people in Britain who tell you that they can't practise good medicine today. They are the direct descendants of those who didn't practise it yesterday." The doctor-patient relationship had changed no doubt—but in no country more than in the U.S.A., where the change could not be due to the N.H.S. The most important things could not be measured by science; and Professor Alstead's description of æsthetics as an international language reminded Professor Platt of a foreign 'cellist's remark to him: "For the Ravel it is not enough to have skill. One must also have love." This was equally true of medicine.

Dr. Katharine Lloyd-Williams proposed The Guests and Overseas Visitors—from all five continents.

Responding, Dr. Haldorsen said that Scandinavia has 650 members of the Association, and likened the purpose of its gatherings to that of a Scottish reel—"everybody meets everybody". Dr. Del Mundo spoke of the 13,000 women doctors in Japan, Australia, and the Philippines, and of the welcome awaiting the Association at its Congress in the Philippines in 1962. Prof. M. L. Chevrel, in expressing thanks for a hospitality which had freed the visitors from care, paid particular tributes to Dr. Tosoni-Dalai and Dr. Aitken, late president and secretary. And Dr. A. D. Morani, in both English and Spanish, replied for The Americas.

Royal Medical Benevolent Fund

The annual general meeting of this Fund will be held at 11, Chandos Street, London, W.1, on Wednesday, July 30, at 5 P.M.

Regional-board Appointments

Dr. H. M. C. Macaulay retires on July 31 from the post of senior administrative medical officer to the North West Metropolitan Regional Hospital Board, and he will be succeeded by Dr. F. J. Fowler. Dr. Fowler is at present deputy senior administrative medical officer to the North East Metropolitan Regional Hospital Board and he will be succeeded by Dr. T. A. Ramsay.

Dr. Fowler, who is 46 years of age, graduated M.B. from the University of Birmingham in 1935. After holding house-appointments in Birmingham, he became in 1938 senior assistant medical officer at Derby City Hospital. During the late war he served with the R.A.M.C. in France, North Africa, and Algiers, finally serving, with the rank of colonel, as A.D.M.S. (administration) at Allied Force Headquarters. On demobilisation in 1945 he was sent under the postgraduate training scheme to Hallam Hospital, West Bromwich, to work under Dr. J. H. Sheldon. In 1948 Dr. Fowler was appointed assistant senior medical officer to the Oxford R.H.B. He took up his present appointment in 1951.

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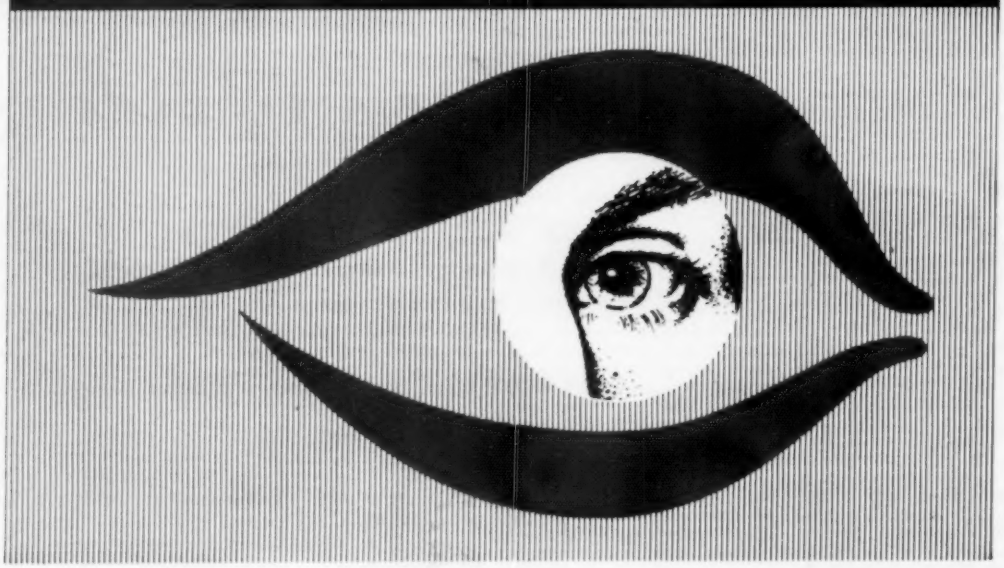

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(1) 'Topical Aspects of Poliomyelitis'; 'Journal of the Royal Society of Health' Dec. 1956.
(2) World Health Organisation Technical Report Series, No. 81, 'Expert Committee on Poliomyelitis'.
(3) Domestos Technical Report D.R. 82A.

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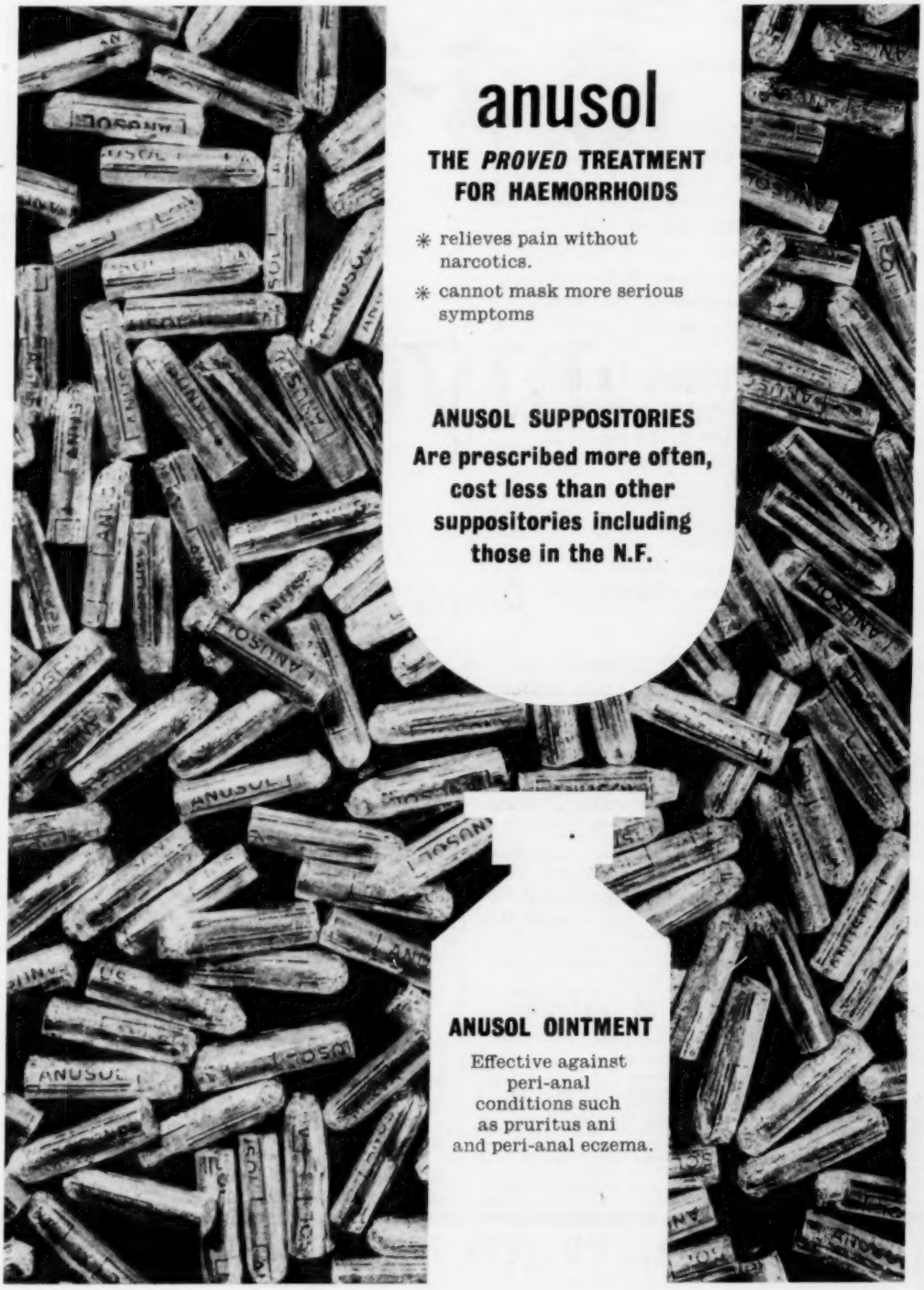
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Academic and Educational

SOCIETY OF APOTHECARIES OF LONDON

DIPLOMA IN INDUSTRIAL HEALTH

The next Examination will begin on MONDAY, 8TH DECEMBER, 1958. The following Examination will be held in JULY, 1959.

For Regulations apply Registrar, Apothecaries' Hall, Black Friars-lane, London, E.C.4.

POSTGRADUATE MEDICAL SCHOOL OF LONDON, Ducane-road, W.12. REGISTRAR (bacteriology) required 1st October. Duties include routine work, demonstrations to the D.C.P. course. Opportunities for research. Equivalent of National Health Service terms.

Applications, with the names of 2 referees, to the Dean by 1st August.

THE MEDICAL COLLEGE OF ST. BARTHOLOMEW'S HOSPITAL, West Smithfield, E.C.1. Applications are invited from registered medical practitioners for the post of SENIOR LECTURER IN MEDICINE, the appointment to commence as soon as possible. The salary is on the scale £1650–£100–£1950 together with children's allowance and membership of the F.S.S.U.

Applications, which should be received not later than 5th September, 1958, should be addressed to the Dean of the Medical College, from whom further particulars may be obtained.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL. FULL-TIME ASSISTANT to the Professorial Dental Unit from 1st October, 1958, or as soon as possible after that date. Applications are invited for this post graded as Lecturer, salary scale £1150–£1750 according to qualifications and experience; University allowances and superannuation. Duties will include the teaching of prosthetics and there will be opportunity to gain experience in other branches of dentistry and to undertake research.

Applications (4 copies), together with the names of 3 referees, should be sent to the Secretary, University College Hospital Medical School, University-street, London, W.C.1, by 6th September, 1958.

UNIVERSITY OF LONDON. The Senate invite applications for the READERSHIP IN OBSTETRICS AND GYNÆCOLOGY tenable at the Institute of Obstetrics and Gynæcology (salary within the range £2050–£2550).

Applications (10 copies) must be received not later than 8th September, 1958, by the Academic Registrar, University of London, Senate House, W.C.1, from whom further particulars may be obtained.

AMENDED ADVERTISEMENT

UNIVERSITY OF BIRMINGHAM. Faculty of Medicine. Applications are invited for the post of Whole-time LECTURER IN MEDICINE (Clinical) with clinical duties in the Medical Professorial Unit of the Queen Elizabeth Hospital. There are opportunities for research into problems of cardio-respiratory function. Salary range £900–£1950 (plus F.S.S.U. and family allowance), depending on age, experience and qualifications.

Applications (9 copies), together with the names of 3 referees, should be sent not later than 23rd August, 1958, to the Assistant Registrar, The Medical School, Birmingham, 15, from whom further particulars may be obtained.

THE UNIVERSITY OF LIVERPOOL. Applications are invited for the post of Whole-time RESEARCH ASSISTANT in the Department of Laryngology, at a salary within the range £1000–£1200 p.a., according to qualifications and experience.

Applications, stating age, academic qualifications and experience, together with the names of 3 referees, should be received not later than 9th August, 1958, by the Registrar, from whom further particulars of the conditions of appointment may be obtained.

THE UNIVERSITY OF MANCHESTER. Darbishire HOUSE HEALTH CENTRE. Applications are invited for the appointment of ASSISTANT GENERAL PRACTITIONER at the Darbishire House Health Centre in Upper Brook-street and High-street, Manchester, for a period of 12 months beginning 1st October, 1958. The work entails assisting the 4 General Practitioners in the Centre in which about 12,000 patients are at present registered. The Health Centre is also used in the teaching of medical students of the University. Salary at the rate of £1050 p.a., with an allowance towards the cost of travelling expenses and superannuation.

Applications, which should include full particulars of qualifications and experience, must reach the Registrar, the University, Manchester, 13, not later than 9th August, 1958, and should give the names of not more than 3 persons to whom reference may be made.

UNIVERSITY OF CAPE TOWN/PROVINCIAL ADMINISTRATION OF THE CAPE OF GOOD HOPE JOINT MEDICAL STAFF. Applications from suitably qualified persons are invited for the post of LECTURER (Grade C) IN ANATOMY. The appointment will be made under the terms of the Joint Staff Agreement between the University of Cape Town and the Provincial Administration of the Cape of Good Hope. The successful candidate will take part in the theoretical and practical teaching of medical students and of medical auxiliaries, and will be required to assume duty on 1st February, 1959, or as soon as possible thereafter. The salary is £1380 p.a., plus a temporary cost-of-living allowance for a married man (at present £234 p.a.).

Applications (with copies of testimonials) should state age, qualifications, experience, publications and research interests and give the names of 2 referees whom the University may consult. 2 copies of the application must reach the Secretary, Association of Universities of the British Commonwealth, 36, Gordon-square, London, W.C.1 (from whom a memorandum giving the general conditions of appointment should be obtained), not later than 31st August, 1958. A third copy must be sent direct by airmail to the Registrar, University of Cape Town, Private Bag, Rondebosch, C.P. South Africa, by the same date.

The University reserves the right to recommend the appointment of a person other than one of the applicants or else to recommend no appointment.

KANEMATSU MEMORIAL INSTITUTE OF PATHOLOGY. Applications are invited from qualified medical practitioners for the position of DIRECTOR at a commencing salary of £3616 (Australian currency), including £100 as remuneration for administrative duties. The duties of the Director are mainly to devote himself to his chosen field of medical research. He will also be expected to exercise general supervision over the routine work of the Institute.

Further particulars, set out in a brochure and the 1956 annual report of the Institute, may be obtained from the Editor, THE LANCET, 7, Adam-street, Adelphi, London, W.C.2. Superannuation: Contributory scheme available after completing 1 year's service.

Applications, with copies of published papers, should reach the President, Sydney Hospital, Sydney, New South Wales, Australia, not later than 30th September, 1958.

6th June, 1958. E. C. DOCKING, Secretary.

Hospital Services: Senior Appointments

GUY'S HOSPITAL, S.E.1. Applications are invited for the post of ASSISTANT to the Director of the Department of Obstetrics (half-time). The appointment will be for 1 year in the first instance, with duties from 1st October, 1958. The salary will be £975–£50–£1375.

Forms of application are obtainable from, and should be lodged with, the Dean, Guy's Hospital Medical School, London Bridge, S.E.1, not later than 12th August, 1958.

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1. CONSULTANT PHYSICIAN, 2 or 3 half-days a week, Mount Vernon Hospital, Northwood, Middlesex (551 Beds).

Applications before 25th August, 1958.

2. CONSULTANT PSYCHIATRIST AND MEDICAL DIRECTOR, 9 half-days a week, Child Guidance Training Centre, 6, Osnaburgh-street, N.W.1.

Applications before 27th August, 1958.

3. CONSULTANT PÆDIATRICIAN, 2 half-days a week, Royal Northern Hospital, Holloway, N.7 (277 Beds).

Applications before 1st September, 1958.

4. ASSISTANT CHEST PHYSICIAN, whole-time, Senior Hospital Medical Officer grade, Ashford Chest Clinic, Ashford Hospital, Middlesex. Candidates should have good general medical experience and special experience in treatment of tuberculosis and diseases of the chest.

Applications before 3rd September, 1958.

Hospitals, Centre and Clinic may be visited by direct appointment.

Application forms obtainable from and returnable to Secretary, North West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1.

ST. THOMAS'S HOSPITAL, London, S.E.1. Assistant to the Department of Venereal Diseases required from 11th November, 1958, to carry out 8 half-day sessions per week. Salary £1315 9s. 8d.–£1691 6s. 8d. p.a.

Applications (12 copies), naming 3 referees, to Clerk of the Governors by 23rd August, 1958.

BIRMINGHAM REGIONAL HOSPITAL BOARD. Locum ASSISTANT CHEST PHYSICIAN (£34 14s. 6d. weekly) for duties with the Birmingham Mobile Mass Radiography Unit (9 notional half-days weekly) and Birmingham Chest Clinic (2 notional half-days weekly). Experience in chest diseases and reading of miniature films desirable. Appointment for 12 months with possibility of extension.

Apply Secretary, Regional Hospital Board, 10, Augustus-road, Birmingham, 15.

CANTERBURY AND ISLE OF THANET HOSPITAL MANAGEMENT COMMITTEES. Locums in Obstetrics and Gynæcology required.

CONSULTANT OR SENIOR HOSPITAL MEDICAL OFFICER (maximum part-time)—28th August–15th September, 1958.

REGISTRAR (whole-time)—15th September–28th September, 1958.

Possession of a car an advantage; pay according to grading.

Applications to be sent to the Group Secretary, Central Office, Nunnery Fields Hospital, Canterbury, as soon as possible.

CARDIFF. THE UNITED CARDIFF HOSPITALS AND THE WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of CONSULTANT OPHTHALMOLOGIST. Maximum part-time appointment, 5 sessions with the United Cardiff Hospitals and 4 with the Regional Hospital Board.

Detailed applications (1 copy only), giving full details of qualifications and experience, and the names of 3 referees, should be forwarded to the Secretary to the Board, United Cardiff Hospitals, Cardiff Royal Infirmary, Cardiff, within 14 days of the appearance of this advertisement.

EXETER CLINICAL AREA. SOUTH WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of a CONSULTANT SURGEON in the Exeter Clinical Area. The appointment will be on a maximum part-time basis (9 sessions). The successful candidate will have charge of beds at Newton Abbot Hospital and at Torbay Hospital, Torquay; he will also be required to visit other hospitals in the clinical area as determined by the Regional Board.

Applications (12 copies), stating date of birth, qualifications and experience, together with the names and addresses of 2 referees, should be sent to the Secretary of the Regional Hospital Board, 27, Tyndalls Park-road, Bristol, 8, not later than 16th August, 1958.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time CONSULTANT PATHOLOGIST-IN-CHARGE required 7th February, for the Lincoln and Grantham Group of hospitals.

Application forms and further details from the Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield. Forms to be returned by 23rd August, 1958.

LEEDS REGIONAL HOSPITAL BOARD. Consultant PSYCHIATRIST AND PHYSICIAN-SUPERINTENDENT at Broadgate Hospital (650 Beds), Beverley, East Riding. The successful candidate will have extramural duties at general hospitals in the Hull and East Riding areas. The appointment may be either resident or non-resident. Candidates for the above appointment should hold high qualifications in medicine and psychiatry and have had experience of administrative aspects of the specialty.

Applications (12 copies), stating age, qualifications and details of appointments held showing dates, with names and addresses of 3 referees, to the Secretary, Park-parade, Harrogate, not later than 26th August, 1958.

NEWCASTLE REGIONAL HOSPITAL BOARD. Appointment of CONSULTANT PSYCHIATRIST in Child Guidance, St. Luke's Hospital, Middlesbrough (567 Beds). The Child Guidance Unit of this Hospital is in a detached house in a suburb of the city, near the Hospital, and consists of an inpatient unit of 16 Beds and an active outpatient department. Additional outpatient clinics will be arranged in association with the North Riding local authority. The appointment is whole-time; up to 2 sessions per week may be spent at the Unit of Child Psychiatry, Newcastle, a teaching and research unit associated with the University Department of Psychological Medicine. Opportunities will be given for devoting some time to adult psychiatry. Appointee to reside in close proximity to the Hospital. Further particulars from Regional Psychiatrist.

Applications, with names and addresses of 3 referees, to Regional Psychiatrist, Regional Hospital Board, Benfield-road, Newcastle upon Tyne, 6, within 28 days.

SCOTLAND. SOUTH-EASTERN REGIONAL HOSPITAL BOARD. CONSULTANT ANÆSTHETIST (whole-time or maximum part-time) to the Central Group of hospitals for duties mainly at the Princess Margaret Rose Orthopædic Hospital, Edinburgh.

Apply, giving particulars of age, qualifications and previous experience, and the names of 3 referees, to the Secretary, 11, Drumsheugh-gardens, Edinburgh, 3, by 23rd August, 1958.

SCOTLAND. SOUTH-EASTERN REGIONAL HOSPITAL BOARD. CONSULTANT SURGEON (whole-time or maximum part-time) for duties in hospitals under the West Fife Board of Management.

Apply, giving particulars of age, qualifications and previous experience, and the names of 3 referees, to the Secretary, 11, Drumsheugh-gardens, Edinburgh, 3, by 23rd August, 1958.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the following appointments:

ASSISTANT PHYSICIAN (Consultant grading) at the Victoria Infirmary, Glasgow. The appointment is part-time on the basis of 7 notional half-days per week.

Whole-time ASSISTANT CARDIOLOGIST based at the Royal Infirmary, Glasgow. Salary (at age 32 and over) on the scale £1653 15s.–£52 10s.–£2126 5s.

Whole-time ASSISTANT ORTHOPÆDIC SURGEON at the Royal Hospital for Sick Children and with duties also at the Western Infirmary, Glasgow. Salary (at age 32 and over) on the scale £1653 15s.–£52 10s.–£2126 5s.

Whole-time ASSISTANT ORTHOPÆDIC SURGEON at Falkirk and District Royal Infirmary and in the area as may be required. Salary (at age 32 and over) on the scale £1653 15s.–£52 10s.–£2126 5s.

ASSISTANT RADIOLOGIST in the Ayr County Area. The appointment will be whole-time or on the maximum part-time basis of 9 notional half-days per week. Salary (at age 32 and over) on the scale £1653 15s.–£52 10s.–£2126 5s.

Applications (16 copies), stating date of birth, qualifications, experience, present appointment, and the names of 3 referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent-street, Glasgow, C.2, not later than 30 days after the publication of this advertisement.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires Whole-time ASSISTANT PSYCHIATRIST (Senior Hospital Medical Officer grade) at Holloway Sanatorium, Virginia Water, Surrey. Candidates should possess D.P.M. and preferably a higher qualification, and have wide experience in psychiatry.

Applications by letter (5 copies) giving date of birth, qualifications, experience, and names of 3 referees, to Secretary (S.1), South West Metropolitan Regional Hospital Board, 11A, Portland-place, London, W.1, by 23rd August, 1958. Applicants may visit Hospital by local arrangement.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires Whole-time Locum ASSISTANT CHEST PHYSICIAN (Senior Hospital Medical Officer grade) for the Croydon Chest Clinic area. Duties mainly at the Central Chest Clinic, 33, Mayday-road, Thornton Heath, Surrey, under the direction of the Consultant Chest Physician. The post will be tenable for 1 year in the first instance. Remuneration £34 14s. 6d. per week.

Applications to Assistant Senior Medical Officer, South West Metropolitan Regional Hospital Board, 27, Queen Anne-street, London, W.1, by 23rd August, 1958.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires a CONSULTANT DERMATOLOGIST (maximum part-time or full-time) for duties in the Winchester, Alton, Salisbury and Portsmouth Groups. There is a Consultant Dermatologist in the Portsmouth Group, but the successful candidate will be in sole charge of the Dermatological Departments in Winchester, Alton and Salisbury. Residence within Salisbury or Winchester is a condition of the appointment. Canvassing will disqualify but candidates may visit the hospitals by arrangement with the Group Secretary, Royal Hants County Hospital, Romsey-road, Winchester; Group Secretary, Lord Mayor Treloar Hospital, Alton; Group Secretary, Odstock Hospital, Salisbury; and Group Secretary, St. Mary's Hospital, Milton-road, Portsmouth.

Applications (7 copies), stating age, qualifications, experience and names and addresses of 3 referees, to the Area Secretary, Highcroft, Romsey-road, Winchester, by 16th August, 1958.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires Part-time CONSULTANT OPHTHALMOLOGIST (1 half-day per week) for duties at Leatherhead Hospital, Leatherhead, Surrey (Epsom Group).

Applications by letter (5 copies), giving date of birth, qualifications, experience, and names of 3 referees, to Secretary (S.1), South West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 23rd August, 1958. Applicants may visit Hospital by local arrangement.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires a DIAGNOSTIC CONSULTANT RADIOLOGIST (8 half-days per week) to work in the Southampton Group and Bournemouth and East Dorset Group of hospitals. The successful candidate will be required to undertake approximately 3–4 half-days per week at Lymington Hospital in the Southampton Group and the remainder of his time in the Bournemouth and East Dorset Group of hospitals. Wide experience and higher qualifications are essential. Residence in Lymington/Christchurch area is a condition of the appointment. Canvassing will disqualify but candidates may visit the hospitals by arrangement with the Group Secretary, Bullar-street, Southampton, and the Group Secretary, Royal Victoria Hospital, Gloucester-road, Boscombe, Bournemouth.

Applications (7 copies), stating age, qualifications, experience, and names and addresses of 3 referees to the Area Secretary, Highcroft, Romsey-road, Winchester, by 16th August, 1958.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires a Part-time CONSULTANT ORTHOPÆDIC SURGEON (9 half-days per week) for the Orthopædic and Traumatic Surgery Services of the Portsmouth Group. The main duties will be at the Royal Portsmouth Hospital which is the major accident centre of the Group. Residence in or within a radius of approximately 10 miles of Portsmouth is a condition of the appointment. Canvassing will disqualify but candidates may visit the hospitals by arrangement with the Group Secretary, St. Mary's Hospital, Milton, Portsmouth.

Applications (7 copies), stating age, qualifications, experience, and names and addresses of 3 referees, to the Area Secretary, Highcroft, Romsey-road, Winchester, by 16th August, 1958.

AUSTRALIA. CANCER INSTITUTE BOARD, 483, Little Lonsdale-street, MELBOURNE, VICTORIA, AUSTRALIA. Applications for appointment to the position of OFFICER IN CHARGE OF ANÆSTHESIA (half-time) are invited from duly qualified medical practitioners possessing a senior qualification in anæsthesia. In addition to participating in the anæsthetic services of the Institute, the appointee will be required to coordinate and direct these services. The Institute is a well-equipped centre for radiotherapy and has a present bed capacity of 61 Beds. It is anticipated that the bed capacity will be increased to 95 beds early in 1959. Salary at commencement will be at the rate of £A1603 p.a., which is the salary applicable to officers of Consultant status. Superannuation is available and the appointee will be entitled to sick, recreational, and long-service leave on a pro rata basis. The position is non-resident. An appointee from overseas will be granted first class fares for himself and family, also an allowance of £200 sterling for the transport of furniture and personal effects. Further information may be obtained from the Medical Director, Dr. W. P. Holman.

Applications, stating qualifications, experience and including the names of at least 2 referees, close with the undersigned on 15th August, 1958. R. K. CHURCHES, Acting Manager.

CANADA. UNIVERSITY OF ALBERTA HOSPITAL, EDMONTON, ALBERTA, CANADA. Applications are invited for the position of ASSISTANT DIRECTOR of the Department of Clinical Laboratory Services. The duties will be concerned with the future development of the biochemistry laboratory service in the Hospital, consulting and advising on clinical problems and research projects involving biochemistry and teaching. A teaching appointment in the University of Alberta Medical School, while not automatic with this appointment, is customary. There will be ample opportunity to carry on individual research. The qualifications required are a degree in medicine and special training and experience in biochemistry. Preference will be given to those holding the M.R.C.P. or F.R.C.P., or a doctorate degree in biochemistry. Male, age 30–40, preferred but not essential. Salary $10,000–$12,000 p.a. Further details may be obtained from Professor E. J. King, Postgraduate Medical School, Ducane-road, W.12, London, England.

Interested parties should apply to the Medical Superintendent, University of Alberta Hospital, giving full details and the names of 2 referees.

TASMANIA. LAUNCESTON GENERAL HOSPITAL. Applications from qualified medical practitioners are invited for the position of CLINICAL PATHOLOGIST. Preference will be given to applicants with experience in the general field of pathology and in possession of a higher qualification. Salary £2500 (Aust.) p.a., rising by yearly increments to a maximum of £3000 p.a.

Details of this appointment and conditions of service may be obtained on application in writing to the General Superintendent. Closing date for applications—15th August, 1958.

B. W. GRIFFITHS, Secretary.

Hospital Services: Junior Appointments

ACTON HOSPITAL, Gunnersbury-lane, W.3. Part-time MEDICAL REGISTRAR required for 3 sessions per week, for inpatient and outpatient duties. Post now vacant. Ministry of Health conditions of service. Salary pro rata to whole-time scale.

Application forms obtainable from and returnable to Group Secretary, Central Middlesex Hospital, Park Royal, N.W.10, within 7 days.

BETHNAL GREEN HOSPITAL, Cambridge Heath-road, E.2. HOUSE PHYSICIAN, pre-registration post vacant 14th August, 1958.

Apply, stating experience, with copies of 2 testimonials, to Hospital Secretary.

BROMPTON HOSPITAL, S.W.3. Applications invited for the post of NON-RESIDENT HOUSE PHYSICIAN for which there are 3 vacancies, for 6 months from 1st October, 1958. Duties include work in outpatient department and wards. Salary at the rate of £577 10s. p.a.

Applications, stating age, qualifications with dates, nationality and appointments held, together with copies of testimonials, by 9th August, 1958, to KENNETH A. F. MILES, House Governor.

BROMPTON HOSPITAL, S.W.3. Applications invited for post of SURGICAL REGISTRAR (whole-time). The appointment is for 1 year from 22nd September, 1958, with eligibility for reappointment. Candidates must hold the diploma of F.R.C.S.

Applications, stating age, qualifications with dates, nationality and appointments held, together with copies of testimonials, by 9th August, 1958, to KENNETH A. F. MILES, House Governor.

CONNAUGHT HOSPITAL, Walthamstow, E.17. (123 Beds.) HOUSE PHYSICIAN required for a period of 6 months. Post vacant 21st August, 1958.

Applications, with full details and copies of 2 recent testimonials, should be sent immediately to Secretary, Forest Group Hospital Management Committee, Langthorne-road, E.11.

DULWICH HOSPITAL (in association with King's College Hospital Medical School for teaching purposes), East Dulwich-grove, S.E.22. Applications invited for appointment as SENIOR HOUSE OFFICER (general medical duties), vacant 1st September.

Applications, giving age, qualifications, details of previous posts, with copy testimonials or names of 2 referees, to Group Secretary, Camberwell Hospital Management Committee, Dulwich Hospital, not later than 11th August.

DULWICH HOSPITAL (in association with King's College Hospital Medical School for teaching purposes), East Dulwich-grove, S.E.22. HOUSE OFFICER (general surgical duties) required from 20th August. Recognised pre-registration post.

Applications, with copy testimonials or names of 2 referees, to Group Secretary, Camberwell Hospital Management Committee, Dulwich Hospital, not later than 7th August.

GUY'S HOSPITAL, S.E.1. Applications are invited for the post of REGISTRAR in the Radiotherapy Department; duties to commence as soon as possible. The post will be tenable until 30th September, 1959, in the first instance. Higher qualifications would be an advantage, but there would be opportunities for studying for the D.M.R.T. Parts I and II.

Forms of application are obtainable from, and should be lodged with, the Superintendent, Guy's Hospital, London Bridge, S.E.1, not later than 5th August, 1958.

GUY'S HOSPITAL, S.E.1. Applications are invited for the post of REGISTRAR in the Department of Diagnostic Radiology at Guy's Hospital, with appointment from 1st October, 1958, until 30th September, 1959, in the first instance.

Forms of application are obtainable from, and should be lodged with, the Superintendent, Guy's Hospital, London Bridge, S.E.1, not later than 5th August, 1958.

GUY'S HOSPITAL, S.E.1. Applications are invited for the post of SENIOR REGISTRAR in the Department of Psychological Medicine, with duties chiefly in the Outpatient Department, and the Child Psychiatry Clinic, commencing not later than 1st October, 1958. Applicants should possess a higher qualification and have experience in child psychiatric work.

Forms of application are obtainable from, and should be lodged with, the Superintendent, Guy's Hospital, London Bridge, S.E.1, not later than 1st August, 1958.

HACKNEY HOSPITAL, London, E.9. (General, 857 Beds.) Applications for the 6 months' resident posts of Pre-registration HOUSE PHYSICIANS (2 vacancies—24th August) should be sent to Secretary, above address, by 5th August, quoting HH PHO.

HIGHLANDS GENERAL HOSPITAL, Winchmore Hill, N.21. HOUSE SURGEON for gynæcology and general surgery.

Applications, with copies of 3 testimonials and name and address of 1 referee, to Hospital Secretary.

HIGHLANDS GENERAL HOSPITAL, Winchmore Hill, N.21. HOUSE PHYSICIAN vacant 13th August, 1958. Preference given to applicants seeking pre-registration post under Medical Act, 1950.

Applications, with copies of 3 testimonials and name and address of 1 referee, to Hospital Secretary.

LAMBETH HOSPITAL, Kennington, S.E.11. Applications are invited from pre-registration and registered medical practitioners for the post of RESIDENT HOUSE SURGEON. Recognised for the F.R.C.S. Vacant 24th August, 1958. The successful candidate will be required to carry out a fortnight's locum duty commencing 10th August.

Application forms from the Hospital Secretary.

LONDON JEWISH HOSPITAL, Stepney Green, E.1. (130 Beds.) SENIOR HOUSE OFFICER (Surgical Department) required (resident). Vacancy on 1st August, 1958. Post recognised for F.R.C.S.

Applications, stating age, qualifications and experience, together with copies of testimonials, to be sent to the Hospital Secretary.

MILDMAY MISSION HOSPITAL, Austin-street, London, E.2. Applications are invited for the pre-registration post of RESIDENT HOUSE SURGEON (post recognised for F.R.C.S.) vacant on 31st July, 1958. Candidates should be in sympathy with the evangelical Christian aims of the Hospital.

Applications and references to be addressed to the Medical Superintendent as soon as possible.

NEW END HOSPITAL, Hampstead, N.W.3. Registrar (general surgery) required for unit of 93 Beds. Experience of traumatic surgery desirable. Vacant 1st October, 1958, F.R.C.S. desirable. The Hospital may be visited by direct appointment.

Application forms obtainable from and returnable to Group Secretary, Archway Group Hospital Management Committee, 46, Cholmeley Park, N.6, by 5th August, 1958.

NELSON HOSPITAL, Kingston-road, Merton, S.W.20. HOUSE SURGEON (resident, not pre-registration). Post vacant now. Recognised for F.R.C.S.

Applications, stating age, qualifications, &c., with the names and addresses of 2 referees, should be sent to the Secretary at above address.

NORTH MIDDLESEX HOSPITAL, London, N.18. 2 RESIDENT HOUSE PHYSICIANS required, for 1st September, for 6 months. General medicine. Approved pre-registration posts (first or second).

Applications (in own handwriting), stating age, nationality, qualifications, experience, with copies of recent testimonials, to the Group Secretary, by 30th July.

NORTH WEST METROPOLITAN REGIONAL HOS-PITAL BOARD. OBSTETRIC AND GYNÆCOLOGICAL REGISTRAR for City of London Maternity, Royal Northern and Highlands General Hospitals. Candidates may visit Hospitals by direct appointment.

Application forms obtainable from Group Secretary, Royal Northern Hospital, N.7, by 10th August, 1958.

PADDINGTON GENERAL HOSPITAL, Harrow-road, W.9. (582 Beds.) Applications are invited to fill the post of SENIOR HOUSE OFFICER (casualty—resident on duty) (1 of 3). Recognised for F.R.C.S. Post vacant 1st September.

Applications, stating age, experience, qualifications, together with names and addresses of 2 referees, to be sent to Hospital Secretary immediately.

POPLAR HOSPITAL, East India Dock-road, London, E.14. SENIOR HOUSE OFFICER. Duties are mainly in connection with the Receiving Room and Casualty Departments. Post recognised for F.R.C.S. examination.

Applications, giving full details, to Group Secretary, 2A, Bow-road, E.3.

ROYAL EYE HOSPITAL, St. George's-circus, S.E.1. Applications are invited for the post of RESIDENT SENIOR HOUSE OFFICER from 1st October, 1958. Hospital recognised for F.R.C.S. and D.O.

Application form from Hospital Secretary, not later than 9th August, 1958.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.1. Applications are invited for the post of NON-RESIDENT MEDICAL REGISTRAR. Duties to commence on 1st October, 1958. Appointment for 1 year in the first instance. Candidates should be registered medical practitioners and members of the Royal College of Physicians.

Application forms may be obtained from the Secretary to the Board of Governors to whom they should be returned not later than 8th August, 1958.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.1. Applications are invited from registered medical practitioners for the post of RESIDENT PATHOLOGIST (Senior House Officer). The post is for 1 year from 1st October, 1958. Salary and conditions of service as laid down by the Ministry of Health.

Application forms may be obtained from the Secretary to the Board of Governors, to whom they should be returned not later than 16th August, 1958.

ROYAL NATIONAL THROAT, NOSE AND EAR HOS-PITAL, Gray's Inn-road, W.C.1, and Golden-square, W.1, in association with the Institute of Laryngology and Otology. Applications are invited for the following posts:—

(*a*) SENIOR REGISTRAR,
(*b*) REGISTRAR,
(*c*) SENIOR HOUSE OFFICER,

each with effect from 1st October, 1958. Applicants for (*a*) must have considerable experience in general surgery and also in this specialty, and hold a higher surgical qualification. Applicants for (*b*) and (*c*) must also have had good practical experience and preferably have gained at least the Primary F.R.C.S. examination. The appointments will be in accordance with the terms and conditions of service for the appropriate grades in the National Health Service.

Applications, giving full information and the names of 2 referees, should be sent to the House Governor before 2nd September, 1958.

ROYAL NORTHERN HOSPITAL, Holloway, N.7. Appli-cations are invited for the post of CASUALTY OFFICER (Senior House Officer grade), with duties in the Ophthalmic Department, vacant 1st September, 1958. Recognised for F.R.C.S.

Applications, with copies of recent testimonials, to be sent to the Hospital Secretary by 6th August, 1958.

SOUTH LONDON HOSPITAL FOR WOMEN AND CHILDREN, Clapham Common, S.W.4. Applications are invited from registered Women medical practitioners for the post of CLINICAL PATHOLOGIST (Senior House Officer grade), vacant 10th September, 1958. Previous experience in laboratory work not essential.

Form of application from the Secretary.

ST. CHARLES' HOSPITAL, Ladbroke-grove, W.10. (576 Beds.) Applications are invited for the posts of 2 HOUSE SURGEONS (general), pre-registration.

Applications, stating age, qualifications, experience, together with names and addresses of 2 referees, to be forwarded to Hospital Secretary immediately.

ST. CHARLES' HOSPITAL, Ladbroke-grove, W.10. (576 Beds.) Applications are invited for the post of Whole-time REGISTRAR (Thoracic Surgical Unit). Experience in general surgery and thoracic surgery essential and higher surgical qualifications an advantage. Hospital may be visited by direct appointment.

Application forms obtainable from and returnable to Secretary to the Committee, Paddington Group Hospital Management Committee, Harrow-road, W.9, by 12th August.

ST. CLEMENT'S HOSPITAL, 2a, Bow-road, London, E.3. BOW GROUP HOSPITAL MANAGEMENT COMMITTEE. Locum Tenens MEDICAL REGISTRAR required at above Hospital for the period 24th August–20th September, 1958.

Apply Hospital Secretary (Telephone: ADVance 1325).

ST. GEORGE'S HOSPITAL AND THE SOUTHAMPTON GROUP OF HOSPITALS. (Joint appointment.) Applications are invited for the post of FIRST ASSISTANT to the Department of Obstetrics and Gynæcology, in the grade of Senior Registrar. This is a joint appointment between the St. George's Hospital Group and the Southampton Group of Hospitals. Candidates should possess a higher surgical qualification, and will be required to take up duty at Southampton on 1st November, 1958.

Applications, stating age, education, qualifications, experience and the names and addresses of 2 referees, should reach the undersigned not later than 9th August, 1958.

P. H. CONSTABLE, House Governor.

St. George's Hospital, S.W.1.

ST. JAMES' HOSPITAL, Balham, London, S.W.12. SENIOR HOUSE OFFICER (anæsthetics). Post vacant now. Recognised for D.A. and F.F.A. R.C.S.

Applications, stating age, qualifications, experience and names of 2 referees, to Group Secretary, Wandsworth Hospital Group, at above address.

ST. LEONARD'S HOSPITAL, Nuttall-street, London, N.1. Applications are invited from registered or provisionally registered medical practitioners for the post of HOUSE SURGEON for 6 months.

Apply immediately, with 2 recent testimonials, to Hospital Secretary.

ST. NICHOLAS HOSPITAL, Plumstead, S.E.18. House SURGEON. Vacant 18th August. 6 months' appointment. Approved for pre-registration service and recognised for F.R.C.S.

Apply to Group Secretary, Memorial Hospital, Woolwich, S.E.18.

UNIVERSITY COLLEGE HOSPITAL, Gower-street, W.C.1. Applications are invited for the appointment of SURGICAL REGISTRAR for 1 year in the first instance from 1st October, 1958. The successful candidate will be required to undertake a period of duty at the National Temperance Hospital, Hampstead-road, N.W.1.

Applications, with names of 2 referees, to T. F. W. MACKEOWN, Administrator and Secretary, University College Hospital, by 14th August, 1958.

UNIVERSITY COLLEGE HOSPITAL, Gower-street, W.C.1. Applications are invited for the post of JUNIOR RESIDENT ANÆSTHETIST (graded Senior House Officer) for a period of 6 months from 1st October, 1958.

Applications, with names of 2 referees, to T. F. W. MACKEOWN, Administrator and Secretary, by 9th August, 1958.

WESTMINSTER HOSPITAL, St. John's-gardens, S.W.1. Applications invited for post of SENIOR HOUSE OFFICER to E.N.T. Department for 1 year from 18th October, 1958.

Applications (5 copies), with names of 2 referees, to House Governor by 9th August.

WHIPPS CROSS HOSPITAL, Leytonstone, E.11. Leyton-STONE (NO. 10) HOSPITAL GROUP. Applications are invited for the post of HOUSE PHYSICIAN (post- or pre-registration) (general medicine) at above Hospital. This post becomes vacant on 13th September, 1958.

Application forms are obtainable from the Hospital Secretary, to whom they should be returned by 5th August, 1958.

ABERYSTWYTH, CARDIGANSHIRE. GENERAL HOS-PITAL. MID-WALES HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER (surgical) required (resident). Post recognised for F.R.C.S. examination. Vacancy immediate.

Applications, stating age, experience, &c., to the Group Secretary, Mid-Wales Hospital Management Committee, 31, North-parade, Aberystwyth, Cardiganshire.

ALTON GENERAL HOSPITAL, Alton, Hampshire. RESIDENT HOUSE SURGEON (Senior House Officer grade) required for general surgical duties. Post vacant September. Recognised for F.R.C.S. 136 Beds. Acute general. 6 months' appointment.

Applications and copies of testimonials to be sent to the Hospital Secretary.

ALTON GENERAL HOSPITAL, Alton, Hampshire. SENIOR HOUSE OFFICER (medical) with anæsthetics, Senior House Officer grade. 136 Beds. Acute general. Post vacant 1st September, 1958.

Applications to Hospital Secretary.

AMERSHAM GENERAL HOSPITAL, Buckinghamshire. (297 Beds.) RESIDENT SENIOR HOUSE OFFICER required for Orthopædic and Casualty Department for period of 1 year. Post recognised for F.R.C.S. The department forms part of the Regional Accident and Orthopædic Service based on the Nuffield Orthopædic Centre, Oxford.

Applications, with names and addresses of 3 referees, to Hospital Secretary.

ASHTON, HYDE AND GLOSSOP HOSPITAL MANAGE-MENT COMMITTEE.

HOUSE PHYSICIAN required at Ashton-under-Lyne General Hospital. Vacant August, 1958. Preference given to pre-registration candidates.

HOUSE SURGEON required at Ashton-under-Lyne General Hospital. Vacant August, 1958. Preference given to pre-registration candidates.

Applications, with copies of 2 testimonials, to Group Secretary, General Hospital, Ashton-under-Lyne, Lancs.

AYLESBURY. ROYAL BUCKINGHAMSHIRE HOS-PITAL. CASUALTY OFFICER (Senior House Officer) required mid-August. Post recognised for F.R.C.S. Self-contained furnished flat available at moderate rental.

Apply, with copies of 2 recent testimonials, to Secretary-Superintendent.

AYLESBURY, BUCKINGHAMSHIRE. ROYAL BUCK-INGHAMSHIRE HOSPITAL. Accident and orthopædic and children's general surgery. SENIOR HOUSE OFFICER required 1st August. Recognised for F.R.C.S.

Apply, with 2 names for reference, to Secretary-Superintendent.

ASCOT. HEATHERWOOD ORTHOPÆDIC HOSPITAL. Locum REGISTRAR (orthopædics) required 2 weeks 1st August.

Applications, giving full details and names of referees, to Secretary.

BARNSTAPLE. NORTH DEVON INFIRMARY. (105 Beds.) HOUSE SURGEON (pre-registration) required from mid-July.

Applications, naming 2 referees, to Group Secretary, 19, Alexandra-road, Barnstaple, N. Devon.

BARNSTAPLE. NORTH DEVON INFIRMARY. (105 Beds.) HOUSE PHYSICIAN (pre-registration) required from 5th September, 1958.

Applications, naming 2 referees, to Group Secretary, North Devon Hospital Management Committee, 19, Alexandra-road, Barnstaple.

BARROW-IN-FURNESS. RISEDALE MATERNITY HOSPITAL. Obstetric and Gynæcology Department. Applications are invited for the resident post of SENIOR HOUSE OFFICER at the above Hospital. Post available middle September, 1958. Hospital approved for D.Obst.R.C.O.G.

Applications to the Group Secretary, Barrow and Furness Hospital Management Committee, 105, Abbey-road, Barrow-in-Furness.

BARRY ACCIDENT AND SURGICAL HOSPITAL. SENIOR HOUSE OFFICER required. House available to rent.

Form of application from Group Secretary, Cardiff Hospital Management Committee, 44, Cathedral-road, Cardiff.

BATLEY. THE GENERAL HOSPITAL. (99 Beds.) SENIOR HOUSE SURGEON (orthopædics and general surgery). This Hospital is the main orthopædic hospital in the Group and has 36 orthopædic and 14 general surgery beds. The appointment falls vacant on 10th August, 1958, and is normally held for 12 months. It is recognised by the Royal College of Surgeons of England for a period of 6 months' training for the final examination. If required, a desirable furnished house is available, on rental, close to the Hospital.

Applications, giving full details of present and past appointments and names and addresses of 3 referees, should be forwarded to the Administrative Officer at the General Hospital, Batley, not later than 9th August, 1958.

BEDFORD GENERAL HOSPITAL. (431 Beds.) House SURGEON required immediately. Pre- or post-registration; recognised for F.R.C.S. Post offers exceptional opportunities for general experience in busy acute surgical units.

Inquiries and applications, with copies of 2 recent testimonials, to be sent immediately to Group Secretary, Bedford Group Hospital Management Committee, 3, Kimbolton-road, Bedford.

BEVERLEY, YORKSHIRE. WESTWOOD HOSPITAL. (229 Beds.) HOUSE PHYSICIAN. Vacant 1st August. Pre-registration post, but fully registered practitioners may apply. Married quarters may be available.

Detailed applications to Group Secretary, Westwood Hospital, Beverley, Yorkshire.

BIRMINGHAM, 18. DUDLEY ROAD HOSPITAL. (775 Beds.) 3 HOUSE SURGEONS. Recognised for pre-registration and F.R.C.S. Vacant 1st September, 1958. Each appointment in unit of approximately 85 adult and children's general surgical beds under control of 2 Consultant Surgeons.

Detailed applications, with copies of 3 testimonials, to Group Secretary.

BIRMINGHAM, 9. LITTLE BROMWICH GENERAL HOSPITAL. PÆDIATRIC HOUSE PHYSICIAN (Male/Female), vacant 1st August, 1958. Recognised for D.C.H. Includes duties on infectious diseases wards, Neonatal Department, and Clinics.

Applications to Physician-Superintendent.

BIRMINGHAM REGIONAL HOSPITAL BOARD.

(1) **Burton-on-Trent Group, General Hospital, Burton-on-Trent**

REGISTRAR (psychiatry). St. Matthew's Hospital, Burntwood, Lichfield (1337 Beds). Small self-contained flat available.

(2) **Birmingham (Selly Oak) Group, Oak Tree-lane, Birmingham, 29**

REGISTRAR (surgical). Vacant 1st August, 1958. Birmingham Accident Hospital, Bath-row, Birmingham, 15 (215 Beds). Duties with accident surgery team and possiblity of transfer to Burns Unit. General surgical experience essential. Higher qualification an advantage.

(3) **Birmingham (Sanatoria) Group, Yardley Green Hospital, Birmingham, 9**

REGISTRAR to Thoracic Surgical Unit (66 Beds). Yardley Green Hospital, Birmingham, 9. Resident (single accommodation only) or non-resident. Tuberculous and non-tuberculous surgery undertaken. Experience in general surgery essential.

(4) **West Bromwich Group, District General Hospital, Edward-street, West Bromwich**

Whole-time Locum Tenens REGISTRAR (anæsthetics). Duties at West Bromwich and District General Hospital, Hallam Hospital, West Bromwich, and the Midland Centre for Neurosurgery, Smethwick. Resident. Salary £19 5s. 6d. per week less emoluments. Vacant 15th September–15th December inclusive. Apply immediately for this post, giving details of previous experience, qualifications, and naming 3 referees.

Application forms from Group Secretaries, to be returned by 7th August, 1958.

BIRMINGHAM. ST. CHAD'S HOSPITAL, Hagley-road, BIRMINGHAM, 16. HOUSE SURGEON required. Recognised for pre-registration.

Detailed applications, with copies of testimonials, to Group Secretary, Dudley Road Hospital, Birmingham, 18.

BIRMINGHAM. THE SKIN HOSPITAL (Inpatients' Department), George-road, BIRMINGHAM, 15. SENIOR HOUSE OFFICER or HOUSE OFFICER (resident) required. Modern well-equipped Inpatients' Department, providing facilities for study of skin diseases. Required to assist Consultant at outpatient clinics.

Applications, with copies of 2 recent testimonials, to Group Secretary, Dudley Road Hospital, Birmingham, 18.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS and THE BIRMINGHAM REGIONAL HOSPITAL BOARD. Applications are invited for the whole-time post of NON-RESIDENT DERMATOLOGICAL REGISTRAR (Senior Registrar or Registrar grade). Duties will include sessions at the Queen Elizabeth Hospital and other units of the United Birmingham Hospitals, and at Hospitals of the Birmingham Regional Hospital Board. Candidates must be registered medical practitioners and have had previous experience in the specialty. For appointment to Senior Registrar grade, candidates should possess the M.R.C.P.

Forms of application may be obtained from the Secretary, United Birmingham Hospitals, Queen Elizabeth Hospital, Birmingham, 15, and should be returned not later than 9th August, 1958.

BISHOP'S STORTFORD, HERTFORDSHIRE. HERTS AND ESSEX GENERAL HOSPITAL. Applications invited for post of HOUSE OFFICER (surgical—pre-registration). Salary £467 10s. –£522 10s. p.a. less £125 for residential emoluments. Appointment to commence immediately.

Applications, stating age, nationality, qualifications and experience, with copies of 2 testimonials or names of referees, to Hospital Secretary.

BLACKBURN AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (anæsthetics) required 5th August, 1958, for duties throughout the Group, mainly at Royal Infirmary, Blackburn. Residence at Royal Infirmary, Blackburn. Post recognised for D.A. and F.F.A. R.C.S.

Applications to Group Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn, giving names of 2 referees.

BLACKBURN AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE.

Royal Infirmary, Blackburn

HOUSE SURGEON required immediately. Post recognised for F.R.C.S. and approved for pre-registration purposes.

Queen's Park Hospital, Blackburn

HOUSE SURGEON required immediately. Recognised for F.R.C.S. and approved for pre-registration purposes.

Apply to Group Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn.

BLACKPOOL VICTORIA HOSPITAL. Senior House OFFICER (pædiatrics) required. Post is recognised for D.C.H. and is vacant mid-September.

Applications, stating the names and addresses of 2 referees, should be sent to the Group Secretary, Victoria Hospital, Blackpool.

BOGNOR WAR MEMORIAL HOSPITAL. (32 Beds.) RESIDENT SENIOR HOUSE OFFICER required to work under visiting Consultant Surgeon and Physician; also casualty work. Salary £819 10s. less £150 p.a. for residence. Modern fully-equipped theatre. Good liaison with Chichester main hospitals and with local general practitioners. Also gives opportunity for postgraduate reading.

Apply, giving 3 referees' names, to Group Secretary, 174, Broyle-road, Chichester, Sussex.

BOLTON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE.

Bolton District General Hospital (607 Beds)

RESIDENT HOUSE PHYSICIAN. Vacant 1st August, tenable for 6 months and recognised under pre-registration service schemes.

RESIDENT HOUSE SURGEON. Now vacant, tenable for 6 months, and recognised under pre-registration service scheme; also recognised for F.R.C.S.

The Royal Infirmary, Bolton (238 Beds)

RESIDENT HOUSE SURGEON. Vacant 1st August, tenable for 6 months, and recognised under pre-registration service scheme.

Applications, stating age, nationality, qualifications, experience and the names of 2 referees, to Group Secretary, The Royal Infirmary, Bolton.

BOURNEMOUTH. ROYAL VICTORIA HOSPITAL, Shelley-road. (494 Beds). BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of 2 HOUSE PHYSICIANS. The appointments, which become vacant in mid-August, are recognised for pre-registration purposes.

Applications to the Hospital Secretary.

BOURNEMOUTH. ST. ANN'S HOSPITAL, Canford CLIFFS, BOURNEMOUTH. HOLLOWAY SANATORIUM GROUP HOSPITAL MANAGEMENT COMMITTEE. Appointment of JUNIOR HOSPITAL MEDICAL OFFICER. This Hospital (70 Beds) deals with all forms of psychoneurosis and early psychotic illness on an informal basis, and offers experience in psychotherapy and physical treatments. A small flat is available for a single person. The Hospital may be visited by local arrangement.

Forms of application obtainable from the Group Secretary, Holloway Sanatorium, Virginia Water, Surrey.

BRENTWOOD, ESSEX. HIGH WOOD HOSPITAL FOR CHILDREN (for pulmonary tuberculosis). TEMPORARY REGISTRAR for 3 months from 29th September, 1958.

Please apply to Senior Physician.

BRIGHTON GENERAL HOSPITAL. Applications are invited for the appointment of SENIOR HOUSE OFFICER (orthopædics). Recognised for F.R.C.S. examinations. Salary in accordance with national scale. Vacant 9th August, 1958.

Applications, stating age, qualifications, and experience, and giving the names of 2 referees, should be sent to the Physician-Superintendent, Brighton General Hospital, Elm-grove, Brighton, as soon as possible.

BRIGHTON GENERAL HOSPITAL. Applications are invited for the appointment of HOUSE SURGEON (orthopædics). Salary in accordance with national scale. This is a pre-registration appointment.

Applications, stating age, qualifications, and experience, and giving the names of 2 referees, should be sent to the Physician-Superintendent, Brighton General Hospital, Elm-grove, Brighton.

BRIGHTON AND LEWES HOSPITAL MANAGEMENT COMMITTEE GROUP HOSPITALS. (78 Beds.) SENIOR HOUSE OFFICER for duties in the E.N.T. Department of the above Group. Vacant beginning of August. Recognised for F.R.C.S. and D.L.O.

Applications, with details of experience, &c., together with names of 2 referees, to the Administrative Officer, Royal Sussex County Hospital, Brighton, 7.

BRIGHTON AND LEWES HOSPITAL MANAGEMENT COMMITTEE. Locum REGISTRAR in Obstetrics and Gynæcology required in the Brighton and Lewes Group immediately until 31st October, 1958.

Applications, with details of qualifications, previous posts held, &c., and the names of 2 referees, to be sent at once to the Group Secretary, Brighton and Lewes Hospital Management Committee, Royal Sussex County Hospital, Eastern-road, Brighton, 7.

BRIGHTON. ROYAL SUSSEX COUNTY HOSPITAL. (314 Beds.)

CASUALTY HOUSE SURGEON (duties include work in orthopædic and traumatic unit), end August. Recognised for pre-registration and F.R.C.S.

2 HOUSE PHYSICIANS beginning and mid-September. Pre-registration.

RESIDENT PATHOLOGIST (Senior House Officer grade) for Area Laboratory. Good experience in all branches of clinical pathology. Mid-August. Post recognised for D. Path.

Applications, stating age, qualifications, experience, and naming 2 referees, to the Administrative Officer, Royal Sussex County Hospital, Brighton, 7.

BRIGHTON. SUSSEX EYE HOSPITAL. (56 Beds.) SENIOR HOUSE SURGEON (Senior House Officer grade) and HOUSE SURGEON required end of August. Both posts recognised for F.R.C.S. and D.O. Successful applicant for the post of House Surgeon will be considered for the senior post on completion of 6 months.

Applications, stating usual particulars, and naming 2 referees, to the Administrative Officer, Royal Sussex County Hospital, Brighton, 7.

BRIDGEND. MORGANNWG HOSPITAL. Applications are invited for the appointment of:—

1 JUNIOR HOSPITAL MEDICAL OFFICER.

2 SENIOR HOUSE OFFICERS.

These posts, which should be regarded as suitable for training purposes, offer wide experience in inpatient and outpatient psychiatry. In addition to extensive extramural work, Morgannwg Hospital has an admission-rate of well over 1000 patients per year. The several Departments include those of Pathology, X ray, Psychology, Electroencephalography, &c. All possible encouragement will be provided for study for the D.P.M., for which this Hospital is recognised. Accommodation for either single or married persons is available. Appointments are subject to terms and conditions of service for hospital medical staffs. In the case of the Junior Hospital Medical Officer the appointment will, in the first instance, be limited to 3 years.

Applicants are required to give details of experience, and the names of 3 referees, to the Group Secretary, Morgannwg Hospital, Bridgend, within 2 weeks of the appearance of this advertisement.

BRISTOL. COSSHAM AND FRENCHAY HOSPITAL MANAGEMENT COMMITTEE. Vacancy at Frenchay Hospital (509 acute beds) for HOUSE OFFICER in General Surgery. Tenable for 6 months from 1st August, 1958. Recognised pre-registration post. Unmarried accommodation.

Applications, stating age and qualifications, and naming 2 referees, to the Group Secretary, Frenchay Hospital, Bristol.

BRISTOL (nr. HAM GREEN HOSPITAL, Pill, near BRISTOL. Applications are invited for the post of RESIDENT JUNIOR HOSPITAL MEDICAL OFFICER in the Chest Diseases Wards of the above Hospital. The Hospital is fully equipped for modern treatment of pulmonary tuberculosis and other diseases of the chest, including regular major thoracic surgery. Opportunity also for work in the Bristol Chest Clinic. Appointment for 1 year—renewable. Post vacant 1st September, 1958.

Applications, with testimonials and names of referees, to the Secretary, Ham Green Hospital, Pill, near Bristol.

BRISTOL. SOUTHMEAD GENERAL HOSPITAL GROUP MANAGEMENT COMMITTEE. Required at Southmead Hospital (570 Beds), RESIDENT SENIOR HOUSE OFFICER (casualty) with duties as Orthopædic House Surgeon for 6 or 12 months commencing 1st August, 1958. Post recognised for F.R.C.S. examination.

Applications to be submitted to the Group Secretary, Southmead Hospital, Bristol, forthwith.

BURNLEY AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. BURNLEY GENERAL HOSPITAL (641 Beds), BURNLEY VICTORIA HOSPITAL (171 Beds). RESIDENT HOUSE OFFICERS (surgical). The appointments are approved as pre-registration posts and recognised for F.R.C.S. Subject to satisfactory service, the successful applicants will be favourably considered for appointment as House Physician at the termination of contract as Surgical House Officer.

Applications, with 2 references, to Group Secretary, Burnley General Hospital.

BURNLEY AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. BURNLEY GENERAL HOSPITAL. (641 Beds.) SENIOR HOUSE OFFICER to Orthopædic and Casualty Departments. Recognised for F.R.C.S. Resident accommodation available. Post available September.

Applications, with the names of 2 referees, to Group Secretary, Burnley General Hospital.

BURNLEY GENERAL HOSPITAL. (641 Beds.) Resident HOUSE OFFICER (medical). The appointment is approved as a pre-registration post. Vacant 5th August, 1958.

Applications, with 2 references, to Group Secretary, Burnley and District Hospital Management Committee, Burnley General Hospital.

BURTON-ON-TRENT. THE GENERAL HOSPITAL. HOUSE OFFICER (orthopædics) (pre-registration post) required at the above Hospital. Recognised for F.R.C.S.

Applications to Group Secretary as soon as possible.

BURY AND ROCHDALE HOSPITAL GROUPS. Resident REGISTRAR in Psychiatry. Post now vacant.

Apply Group Secretary, Central Offices, Birch Hill Hospital, Rochdale.

BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE. BURY GENERAL HOSPITAL. Applications invited for the post of SENIOR HOUSE OFFICER in Casualty. The post, which is recognised for the examination of the F.R.C.S., will be vacant mid-July.

Apply, stating full details of experience, &c., and names of 2 referees, to H. WILKINSON, Group Secretary, Bury General Hospital.

BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the undermentioned pre-registration HOUSE OFFICER posts, which are vacant at hospitals in the above Group :—

Medicine. 2 now vacant.

Surgery. 1 vacant August. 1 vacant September.

Apply, stating full details, to H. WILKINSON, Group Secretary, Bury General Hospital.

BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER (medicine) at Rossendale General Hospital.

Apply, stating full details and names of 2 referees, to H. WILKINSON, Group Secretary, Bury General Hospital, Bury, Lancs.

BUSHEY MATERNITY HOSPITAL, Bushey Heath, HERTFORDSHIRE. (50 Beds.) RESIDENT OBSTETRIC HOUSE SURGEON required for above Hospital. 6 months' appointment. Duties include antenatal and other clinics at the Edgware General Hospital, Edgware, Middlesex. Post vacant mid-August, 1958.

Applications, stating age, qualifications, experience and enclosing copies of up to 3 recent testimonials, to Medical Administrator of Edgware General Hospital, Edgware, Middlesex, by 8th August, 1958.

CANTERBURY. KENT AND CANTERBURY HOS-PITAL. (277 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER (pathology), which becomes vacant mid-July, 1958, for 1 year. Salary £819 10s. p.a., with National Health Service conditions. Experience in pathology not essential but candidates must have had previous clinical experience.

Applications, stating age, qualifications, together with copies of 2 recent testimonials, to be addressed to the Hospital Secretary at the above Hospital.

CANTERBURY. KENT AND CANTERBURY HOS-PITAL. (277 Beds.) GYNÆCOLOGICAL HOUSE SURGEON required at Highland Court Annexe, a unit of 25 gynæcological beds situated 3 miles from the above Hospital, with all ancillary services available. Recognised for M.R.C.O.G. 6 months' appointment. Post vacant mid-September. National Health Service salary and conditions.

Applications, together with copies of 2 recent testimonials, to be addressed to the Hospital Secretary at the above Hospital.

CARDIFF ISOLATION HOSPITAL. (219 Beds.) Senior HOUSE OFFICER required at above Hospital. Hospital serves wide area, gives opportunity for study of infectious diseases; has poliomyelitis respiratory unit and medical and convalescent beds. Post vacant late August.

Form of application from Group Secretary, Cardiff Hospital Management Committee, 44, Cathedral-road, Cardiff.

CARDIFF (near). PRINCE OF WALES ORTHOPÆDIC HOSPITAL, RHYDLAFAR, near CARDIFF. SENIOR HOUSE OFFICER required at above Hospital. Married or single accommodation available.

Form of application from Group Secretary, Cardiff Hospital Management Committee, 44, Cathedral-road, Cardiff.

CARDIFF. ROOKWOOD HOSPITAL. Senior House OFFICER (surgical) required at above Hospital.

Form of application from Group Secretary, Cardiff Hospital Management Committee, 44, Cathedral-road, Cardiff.

CARLUKE, LANARKSHIRE. LAW HOSPITAL. (790 Beds.) Applications are invited for the undernoted posts :—

(1) RESIDENT HOUSE SURGEON (pre- or post-registration) for the 6 months commencing 1st August, 1958.

(2) JUNIOR HOSPITAL MEDICAL OFFICER (medical).

Applications, stating age, qualifications and previous experience, together with the names of 2 referees, to be submitted to the Group Medical Superintendent, Law Hospital, as soon as possible.

CASTLEFORD, NORMANTON AND DISTRICT HOS-PITAL, HIGHTOWN, CASTLEFORD. RESIDENT SURGICAL OFFICER (Senior House Officer grade) required. Married accommodation available.

Applications as soon as possible to the Secretary, Pontefract and Castleford Hospital Management Committee, Great Northern House, Salter-row, Pontefract, Yorkshire.

CHATHAM, KENT. ALL SAINTS' HOSPITAL. Medway AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE. PÆDIATRIC HOUSE PHYSICIAN required. Post vacant now, recognised for D.C.H.; salary on House Officer scale according to experience.

Applications to Hospital Secretary, giving details of experience, qualifications, age and nationality, with copies of recent testimonials.

CHATHAM, KENT. ALL SAINTS' HOSPITAL. Medway AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE. HOUSE PHYSICIAN required for post vacant now; recognised for pre-registration service. Salary £467 10s.–£577 10s. p.a. according to experience.

Applications, stating age, qualifications, nationality and experience, with copies of 3 recent testimonials, to the Hospital Secretary.

CHELMSFORD, ESSEX. BROOMFIELD HOSPITAL. Required, experienced Locum Tenens SENIOR REGISTRAR for 6 months from 1st September, 1958, full residence or only when on duty. Unit has 312 Beds for the treatment of pulmonary tuberculosis in adults. Tuberculous and non-tuberculous thoracic surgery, chest clinics, and mass radiography.

Apply Physician-Superintendent.

CHELMSFORD HOSPITAL MANAGEMENT COM-MITTEE. Locum ANÆSTHETIC REGISTRAR required for fortnight during September (1st–14th preferred), for Chelmsford and Essex and St. John's Hospitals.

Applications to Secretary, Chelmsford Hospital Management Committee, London-road, Chelmsford, Essex.

CHERTSEY, SURREY. ST. PETER'S HOSPITAL. WOKING AND CHERTSEY GROUP. (430 Beds.) ROYAL SURREY COUNTY HOSPITAL. GUILDFORD GROUP. (233 Beds.) Locum Full-time E.N.T. REGISTRAR for above and other hospitals in the Groups concerned required from 30th August, 1958, to 14th December, 1958. Recognised for F.R.C.S. and D.L.O. The hospitals may be visited by arrangement.

Applications to Physician-Superintendent, St. Peter's Hospital. Telephone: St. Peter's Hospital, Ottershaw 441; Royal Surrey County Hospital, Guildford 2323.

CHESTERFIELD ROYAL HOSPITAL. House Physician (Senior House Officer grade) required 1st September at the above Hospital for 54-Bed Medical Unit. Post offers good experience in general medicine, and in paediatrics, diabetics, and dermatology. National salary and conditions.

Further particulars obtainable on request from the Group Secretary, Chesterfield Hospital Management Committee, to whom applications should be submitted immediately.

CHESTERFIELD. SCARSDALE HOSPITAL. Applications are invited for the post of JUNIOR HOSPITAL MEDICAL OFFICER required 1st September for Geriatric Unit and for duties at Penmore Hospital. Full Consultant services. Excellent scope for doctor interested in this specialty. House available on service tenancy.

Applications, giving full particulars, with the names of 3 referees, to Group Secretary, Chesterfield Hospital Management Committee, at Chesterfield Royal Hospital.

CHICHESTER. GRAYLINGWELL HOSPITAL. Registrar (Lady or Gentleman) required at the above Psychiatric Hospital which has Departments of Research and Neurology and to which are attached 3 active outpatient clinics. All modern treatments are practised and organised training is given for D.P.M. Accommodation may be available. Candidates may visit the Hospital by arrangement with the Medical Superintendent.

Application forms (obtainable from the Group Secretary) are returnable within 14 days of the appearance of this advertisement.

CHICHESTER. ROYAL WEST SUSSEX HOSPITAL. (202 acute beds.) RESIDENT HOUSE SURGEON required for 6 months' appointment. National salary scales for either provisionally or fully registered practitioners. Post approved for pre-registration practitioners and F.R.C.S. 8 residents. Vacant 18th August, 1958.

Applications, stating age, experience, qualifications with reference or names of referees, to Senior Administrative Officer.

CHICHESTER. ST. RICHARD'S HOSPITAL. Applications are invited for the post of HOUSE PHYSICIAN (recognised for pre-registration) for 6 months only in the first instance. Vacant middle of August, 1958.

Applications, stating age, qualifications and experience, and giving names of 2 persons to whom reference may be made, should be sent to the Surgeon-Superintendent.

CHICHESTER. ST. RICHARD'S HOSPITAL. (400 Beds.) CHICHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (pre-registration) for 6 months only in the first instance. Post vacant now. The Man or Woman appointed will work primarily in the surgical wards of the Hospital. Hospital recognised for F.R.C.S.

Applications, stating age, qualifications and experience, giving names of 2 persons from whom reference may be obtained, should be sent to the Surgeon-Superintendent.

COLCHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications invited for:—

Black Notley Hospital, Braintree, Essex (522 Beds)

Post of Locum SURGICAL REGISTRAR, for period 11th–24th August, 1958.

Post of Locum REGISTRAR for Pulmonary Tuberculosis Unit, including non-tuberculous diseases of the chest; also duties at chest clinics. Required 1st September for few months.

Essex County Hospital, Colchester, Essex (181 Beds)

Post of Locum SURGICAL REGISTRAR. Required from 31st July, 1958.

Post of Locum MEDICAL REGISTRAR required from 21st August, 1958.

Clacton and District Hospital, Clacton-on-Sea, Essex (58 Beds)

Post of SENIOR HOUSE OFFICER. Duties include medical, surgical, and casualty work. Post tenable for 6 months or 1 year.

Applications, with copies of 3 testimonials, to Group Secretary, 14, Pope's-lane, Colchester, Essex.

CREWE MEMORIAL HOSPITAL. Orthopædic Registrar required. New fully equipped department. The post, which is recognised for F.R.C.S., offers good facilities for study, and will be vacant from mid-August.

Apply, giving names of 3 referees, to the Group Secretary, South Cheshire Hospital Management Committee, Barony Hospital, Nantwich, Cheshire, within 7 days.

CREWE MEMORIAL HOSPITAL. (140 Beds.) Senior HOUSE OFFICER (gynæcology) required. Recognised for M.R.C.O.G. Vacant 1st August.

Applications, stating age, qualifications, &c., with names of 3 referees, to be sent to the Group Secretary, South Cheshire Hospital Management Committee, Barony Hospital, Nantwich, Cheshire, within 7 days after publication.

CUCKFIELD HOSPITAL, Cuckfield, near Haywards HEATH. MID-SUSSEX HOSPITAL MANAGEMENT COMMITTEE. Posts vacant end July :—

JUNIOR HOUSE SURGEON (Orthopædic and Traumatic Unit).

JUNIOR HOUSE PHYSICIAN. Post approved for pre-registration but fully registered practitioners may apply.

JUNIOR HOUSE SURGEON (general surgery). Pre-registration post.

Apply Hospital Secretary stating age, nationality, qualifications and experience, with names of 2 referees.

DAGENHAM HOSPITAL, Rainham-road South, Dagen-HAM, ESSEX (near Dagenham East Underground Station). There is a vacancy for a JUNIOR HOSPITAL MEDICAL OFFICER (resident) at the above Hospital (150 Beds) for pulmonary tuberculosis—all stages. Salary in accordance with the national scale (£852 10s.–£55–£1182 p.a.) less residential charges. Suitable for candidate studying for higher degree. Further particulars from the Physician-Superintendent.

Applications, stating age, qualifications and previous experience, together with recent testimonials, should be sent to the undersigned within 7 days of the appearance of this advertisement.

H. F. HARRIS, Group Secretary,

Ilford and Barking Group Hospital Management Committee. King George Hospital, Ilford.

DERBY. CITY HOSPITAL. Derby No. 1 Hospital Manage-MENT COMMITTEE. Applications are invited for the post of HOUSE PHYSICIAN, pre-registration or Senior House Officer (medicine), for duties in general medicine and paediatrics. Post vacant early in September.

Applications, stating full details together with copies of 2 recent testimonials, should be sent to the Medical Superintendent, City Hospital, Derby, as soon as possible.

DERBY. CITY HOSPITAL. Derby No. 1 Hospital Manage-MENT COMMITTEE. Applications are invited for the posts of HOUSE SURGEONS (2 vacancies). Pre-registration or Senior House Officer (surgical). Recognised for the F.R.C.S. if held by a Senior House Officer. Posts vacant early in September.

Applications, stating full details, together with copies of 2 recent testimonials, should be sent to the Medical Superintendent, City Hospital, Derby, as soon as possible.

DERBY. DERBYSHIRE ROYAL INFIRMARY. (416 Beds.) SENIOR HOUSE OFFICER (general surgery). Resident. Vacant 1st September. Recognised for F.R.C.S.

Apply, giving full details and 2 names for reference, to Secretary.

DERBY. DERBYSHIRE ROYAL INFIRMARY. (416 Beds.) SENIOR HOUSE OFFICER (orthopædic). Vacant 1st September. Recognised for 6 months' "unspecified" training for F.R.C.S.

Apply, giving full details and 2 names for reference, to Secretary.

DEWSBURY, YORKSHIRE. THE GENERAL HOSPITAL. (128 Beds.) Applications are invited for the pre-registration post of HOUSE OFFICER (general surgery) for either the full 6 months or for a Locum appointment for 4–5 months, commencing 1st September, 1958.

Applications, giving full details, should be sent to the Administrative Officer at the Hospital as soon as possible.

DEWSBURY, YORKSHIRE. THE GENERAL HOSPITAL. (128 Beds.) Applications are invited for the pre-registration post of HOUSE PHYSICIAN (general medicine and paediatrics) which falls vacant on 1st August, 1958.

Applications, giving full details, should be sent to the Administrative Officer at the Hospital as soon as possible.

DONCASTER. WESTERN HOSPITAL. (Recognised under the regulations for the D.Obst.R.C.O.G. and M.R.C.O.G. (obstetrical experience) and approved for pre-registration service under the Medical Act, 1950.) Applications are invited for the post of OBSTETRICAL HOUSE OFFICER (Senior House Officer or pre-registration post). Vacant mid-August.

Applications should be forwarded to the Group Secretary, Doncaster Hospital Management Committee, at Doncaster Royal Infirmary by 30th July.

DORKING GENERAL HOSPITAL, Horsham-road, Dork-ING, SURREY. SENIOR HOUSE OFFICER (obstetrics and gynæcology). Vacant 8th September, 1958, for 1 year's appointment. The post is recognised for the D.Obst.R.C.O.G.

Apply to Medical Superintendent.

DORKING GENERAL HOSPITAL, Horsham-road, Dork-ING, SURREY. Applications are invited for the post of SENIOR HOUSE OFFICER (surgery) in General Surgery, Casualty, Orthopædics, and E.N.T. Vacant 1st September, 1958. Recognised for the F.R.C.S. Married quarters may be available to suitable applicants.

Apply, with testimonials, to the Medical Superintendent.

DRIFFIELD, YORKSHIRE. EAST RIDING GENERAL HOSPITAL. (247 Beds.) JUNIOR HOUSE PHYSICIAN, vacant now. Approved pre-registration post, but fully registered practitioners may apply. Duties to include geriatrics and acute medicine. Good general experience for first house appointment. Married quarters may be available.

Apply Group Secretary, Westwood Hospital, Beverley, Yorkshire.

DRIFFIELD, YORKSHIRE. EAST RIDING GENERAL HOSPITAL. (247 Beds.) HOUSE SURGEON (first, second or third post). Vacant now. General surgery, casualty and some orthopædics. Approved pre-registration post. Fully registered practitioners may apply. Married quarters may be available.

Applications to Group Secretary, Westwood Hospital, Beverley, Yorkshire.

DURHAM. DRYBURN HOSPITAL. (303 Beds.) Senior HOUSE PHYSICIAN for Pædiatric Unit of 42 Beds. The appointment is suitable for fully registered practitioners and may be of 6 months' or 1 year's duration from 1st August, 1958. The post is recognised for the D.C.H.

Apply, with particulars of previous experience, and names and addresses of 2 referees, to Group Secretary, Dryburn Hospital, Durham.

EAST ANGLIAN REGIONAL HOSPITAL BOARD. REGISTRAR in Psychiatry, St. Andrew's Hospital, Thorpe, Norwich (1250 Beds). Full range of modern psychiatric treatments and a number of associated general hospital outpatient clinics. Married or single quarters available. Appointment for 1 year, renewable for second year.

Applications, stating age, experience and the names of 3 referees, to the Board's Senior Administrative Medical Officer, 117, Chesterton-road, Cambridge, by 11th August, 1958. Candidates invited to visit Hospital by direct arrangement with Medical Superintendent.

EAST GRINSTEAD, SUSSEX. QUEEN VICTORIA HOSPITAL. (PLASTIC SURGERY AND JAW INJURIES UNIT.) TUNBRIDGE WELLS GROUP HOSPITAL MANAGEMENT COMMITTEE. RESIDENT HOUSE OFFICER required. Appointment vacant 1st August, 1958, for 6 months, offering considerable opportunity to gain experience in plastic surgery and jaw injuries work.

Apply, stating age, and names of 3 referees, to Hospital Secretary.

EDGWARE GENERAL HOSPITAL, Edgware, Middlesex. RESIDENT DENTAL HOUSE SURGEON required at above Hospital. Applicants should have registered dental qualifications. Salary £467 10s.–£577 10s. p.a. 6 months' appointment. Post approved for the Dental Fellowship (Eng. and Edin.).

Applications, stating age, qualifications, experience and enclosing copies of up to 3 recent testimonials, to Medical Director of Hospital.

EDGWARE GENERAL HOSPITAL, Edgware, Middlesex. (704 Beds.) RESIDENT SENIOR CASUALTY HOUSE OFFICER required at above Hospital. Post recognised for F.R.C.S. purposes.

Apply, stating age, nationality, qualifications and experience, together with the names and addresses of 2 referees, to Group Secretary, Edgware General Hospital, by 9th August, 1958.

EDGWARE GENERAL HOSPITAL, Edgware, Middlesex. SENIOR HOUSE SURGEON required for E.N.T. Department of above Hospital. Post vacant mid-August, 1958.

Applications, stating age, qualifications, experience and enclosing names and addresses of 2 referees, to Group Secretary, Edgware General Hospital, by 8th August, 1958.

EDGWARE GENERAL HOSPITAL, Edgware, Middlesex. (704 Beds.) Locum RESIDENT HOUSE SURGEON required for the month of September, 1958, at above Hospital.

Applications to the Medical Administrator, telephone EDGware 2381, extension 6.

EDINBURGH. ROYAL EDINBURGH HOSPITAL FOR MENTAL AND NERVOUS DISORDERS. 2 SENIOR HOUSE OFFICERS (resident or non-resident) required at this Teaching Hospital for 1 year from 1st October, 1958. Good opportunities of training in psychiatry.

Applications, stating qualifications, experience and names of 2 referees, to Physician-Superintendent, Royal Edinburgh Hospital for Mental and Nervous Disorders, Morningside-place, Edinburgh, 10, by 30th August, 1958.

ENFIELD, MIDDLESEX. CHASE FARM HOSPITAL. Appointment of RESIDENT HOUSE SURGEON (third post). Vacant 1st August, 1958. Post provides experience and duties in both general surgery and orthopædics. 6 months' appointment. Post recognised for F.R.C.S. by the Royal College of Surgeons.

Applications, with the names and addresses of 2 referees, to the Group Secretary, Enfield Group Hospital Management Committee, at Chase Farm Hospital.

ENFIELD. WAR MEMORIAL HOSPITAL, Chase Side, ENFIELD, MIDDLESEX. RESIDENT SENIOR HOUSE OFFICER required immediately for general medical and surgical duties in acute general hospital of 61 Beds. 12 months' appointment.

Applications, with names and addresses of 2 referees, to the Group Secretary, Enfield Group Hospital Management Committee, Chase Farm Hospital, The Ridgeway, Enfield, Middlesex.

EPSOM DISTRICT HOSPITAL, Dorking-road, Epsom, SURREY. RESIDENT HOUSE SURGEON required 28th July for Orthopædic, E.N.T. and Eye Departments. Pre-registration post recognised for F.R.C.S.

Applications, stating age, qualifications and experience, with copies of 2 recent testimonials, should be sent as soon as possible to Group Secretary at above address.

GLASGOW. HAWKHEAD (MENTAL) HOSPITAL, 510, Crookston-road, Glasgow, S.W.3. Applications are invited for the post of SENIOR HOUSE OFFICER in Psychiatry (Male or Female, resident or non-resident). The post offers wide experience and training in all aspects of psychiatry (inpatient and outpatient), and all modern methods of treatment are carried out. Recognised for D.P.M.

Applications, together with the names of 2 referees, should be forwarded as soon as possible to Physician-Superintendent at the above address.

GLASGOW, S.2. VICTORIA INFIRMARY. Applications are invited for the post of SENIOR HOUSE OFFICER in Radiology, vacant on 1st October, 1958.

Applications, with names of 2 referees, should be sent to the Secretary, Board of Management for Glasgow Victoria Hospitals, 24, St. Vincent-place, Glasgow, C.1.

GODALMING, SURREY. KING GEORGE V HOSPITAL FOR DISEASES OF THE CHEST. Whole-time RESIDENT THORACIC MEDICAL REGISTRAR required. All modern forms of treatment carried out, including major thoracic surgery, a proportion of the beds being set aside for non-tuberculous thoracic cases. The Hospital is associated with a chest clinic.

Application forms can be obtained from the Group Secretary, Milford Chest Hospital, Godalming, Surrey, to whom they should be returned by not later than 15th August, 1958.

GRIMSBY GENERAL HOSPITAL. Senior House Officer required for Casualty Department. Establishment consists of Senior Casualty Officer and 2 Senior House Officers. Excellent medical library taking principal periodicals.

Applications, with names of 2 referees, to Hospital Secretary.

GRIMSBY. SCARTHO ROAD HOSPITAL. Grimsby HOSPITAL MANAGEMENT COMMITTEE. RESIDENT HOUSE OFFICER (surgical) required (pre-registration or Senior House Officer grade) for duties in acute surgical unit of 56 Beds, modern theatre and Outpatient Department. Offers excellent experience of all types of general surgery. Married quarters may be available if required.

Applications, with names of 2 referees, to the Hospital Secretary.

GUILDFORD. ROYAL SURREY COUNTY HOSPITAL. (233 Beds.) SENIOR HOUSE OFFICER for Ophthalmology; post vacant on 19th August; resident accommodation available. It is tenable for 6 months and renewable. Recognised for F.R.C.S. and D.O. examinations.

Apply as soon as possible, with copies of 3 testimonials, to Hospital Secretary.

GUILDFORD. ROYAL SURREY COUNTY HOSPITAL. GUILDFORD GROUP HOSPITAL MANAGEMENT COMMITTEE, SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. The post of Full-time REGISTRAR to the Orthopædic and Traumatic Unit (60 Beds) serving the Guildford Group is vacant. The appointment provides special facilities for training and experience in traumatic surgery, as well as short-term orthopædics. Candidates are not confined to those holding the F.R.C.S., but this is desirable. The Hospital may be visited by arrangement. The post is for 1 year in the first instance and may be renewed for a further year. It is non-resident, and the candidate appointed will be required to live within a short distance of the Hospital.

Application forms from the Group Secretary, Group Office, St. Luke's Hospital, Guildford, to whom they should be returned as soon as possible.

HAREFIELD HOSPITAL REGIONAL THORACIC SURGICAL UNIT, HAREFIELD, MIDDLESEX. NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the post of SURGICAL REGISTRAR to the Harefield Thoracic Surgical Unit, which serves the North West Metropolitan Region. In the Hospital there are 86 Beds for non-tuberculous surgical chest conditions and 400 Beds for tuberculosis. The appointment thus affords a wide experience in all aspects of thoracic surgery. Candidates must have had previous surgical experience and preference will be given to candidates with a higher surgical qualification. The appointment will be held in the first instance for 1 year.

Application forms obtainable from and returnable to the Group Secretary, Harefield and Northwood Group Hospital Management Committee, Mount Vernon Hospital, Northwood, Middlesex, by 12th August, 1958.

HASTINGS GROUP HOSPITAL MANAGEMENT COMMITTEE. Locum SENIOR HOUSE OFFICER (anæsthetics) required. Non-resident. Salary £15 19s. per week. From 25th August to 14th September, 1958.

Applications, with copies of 2 testimonials or names of 2 referees, to Group Secretary, 11, Holmesdale-gardens, Hastings.

HASTINGS. ROYAL EAST SUSSEX HOSPITAL. (150 Beds.) Applications are invited for CASUALTY AND ORTHOPÆDIC HOUSE SURGEONS (2 posts vacant), graded Senior House Officers, for the Royal East Sussex Hospital, Hastings. Modern department. Hospital is pleasantly situated facing the sea. Posts vacant 2nd and 9th August, 1958, respectively.

Applications, with names of 2 referees, to the Administrator.

HASTINGS. ROYAL EAST SUSSEX HOSPITAL. (150 Beds.) Locum SENIOR HOUSE OFFICER required for Casualty Department from 2nd August.

Apply to Administrator, Royal East Sussex Hospital, Hastings.

HASTINGS. ROYAL EAST SUSSEX HOSPITAL. (150 Beds.) HOUSE SURGEON. Pre-registration post for general surgery and urology required at this acute hospital (surgical) immediately.

Applications, with names of 2 referees, to Administrator.

HASTINGS. ROYAL EAST SUSSEX HOSPITAL. (150 Beds.) Applications are invited for the post of HOUSE SURGEON at the Royal East Sussex Hospital, Hastings. Pre-registration post recognised for F.R.C.S. Vacant 26th July, 1958. The Hospital is pleasantly situated facing the sea and is the main surgical hospital in the Hastings Group. Post offers excellent experience.

Applications, with names of 2 referees, to the Administrator.

HERTFORD COUNTY HOSPITAL. (171 Beds. Hospital situated 21 miles from London.) Applications are invited for appointment of RESIDENT HOUSE PHYSICIAN (Male or Female), second post held. Recognised pre-registration post. Preference given to applicants who have held resident surgical or medical posts in general hospital. Duties to commence 18th August, 1958.

Applications to Group Secretary, Hertford Hospital Management Committee, County Hospital, Hertford, Herts.

HERTFORD COUNTY HOSPITAL. (171 Beds. Hospital situated 21 miles from London.) Applications are invited for the appointment of HOUSE SURGEON (general, first or second post) to commence as soon as possible. Pre-registration post; recognised under F.R.C.S. regulations. Applications will also be considered from fully registered practitioners.

Applications to Group Secretary, Hertford Hospital Management Committee, County Hospital, Hertford, Herts.

HILLINGDON HOSPITAL, Uxbridge, Middlesex. (General—621 Beds.) 2 HOUSE SURGEONS required in General Surgery. Both posts recognised for F.R.C.S. and for pre-registration service.

Apply, together with copies of 3 recent testimonials, to Medical Director by 4th August.

HILLINGDON HOSPITAL, Uxbridge, Middlesex. (General—621 Beds.) 2 HOUSE SURGEONS. Combined posts in obstetrics and gynæcology, recognised for D.Obst.R.C.O.G. and M.R.C.O.G. Posts vacant middle August.

Apply, stating age, nationality, qualifications and experience, and enclosing copies of 3 recent testimonials, to Medical Director by 4th August.

HIGH WYCOMBE, BUCKINGHAMSHIRE. WAR MEMORIAL HOSPITAL. (100 Beds.) SENIOR RESIDENT HOUSE PHYSICIAN required immediately.

Apply, with copies of testimonials or names of 2 referees, to the Secretary.

HITCHIN, HERTFORDSHIRE. LISTER HOSPITAL. CASUALTY OFFICER required for duty with Accident Service and as Orthopædic House Surgeon. Grading up to Senior House Officer, depending on experience, and recognised as pre-registration post and for F.R.C.S. accordingly.

Applications, stating age, nationality, qualifications and experience, together with copies of 3 recent testimonials, to the Medical Administrator, Lister Hospital, as soon as possible.

HORNCHURCH. ST. GEORGE'S HOSPITAL. Junior HOSPITAL MEDICAL OFFICER (resident) required from approximately 1st September next at this Hospital which accommodates 404 chronic sick patients. The post offers excellent geriatric experience.

Applications should be forwarded to the Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford, as soon as possible.

HUDDERSFIELD ROYAL INFIRMARY. (285 Beds.) HUDDERSFIELD HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from provisionally registered medical practitioners for the post of HOUSE PHYSICIAN to commence duties immediately. Salary in accordance with national scale.

Applications, together with copies of 3 recent testimonials, to be addressed to the undersigned as soon as possible.

H. J. JOHNSON, Group Secretary,
Huddersfield Hospital Management Committee.

The Royal Infirmary, Huddersfield.

HUDDERSFIELD ROYAL INFIRMARY. (285 Beds.) HUDDERSFIELD HOSPITAL MANAGEMENT COMMITTEE. HOUSE SURGEON required to commence duty on 6th August, 1958. The post is recognised as a pre-registration appointment and for the F.R.C.S. Salary in accordance with national scale.

Applications, together with copies of 3 recent testimonials, to be addressed to the undersigned as soon as possible.

H. J. JOHNSON, Secretary to the Management Committee.

The Royal Infirmary, Huddersfield.

HULL. KINGSTON GENERAL HOSPITAL. (419 Beds.) HULL A GROUP HOSPITAL MANAGEMENT COMMITTEE.

(i) SENIOR HOUSE SURGEON (vacant mid-September).
(ii) HOUSE SURGEON (vacant now).

Recognised for the F.R.C.S. examinations.

Applications are invited for the above posts in a busy acute general surgical unit.

Applications, with 2 recent testimonials, to the Hospital Secretary.

HULL. VICTORIA HOSPITAL FOR SICK CHILDREN, Park-street. HOUSE SURGEON or Locum HOUSE SURGEON required on 1st August, 1958. Pre-registration or registration post. The post is recognised for the D.C.H. and is an interesting and varied one which includes outpatient and casualty work.

Applications, together with details of experience, testimonials, &c., should be sent to the Hospital Secretary.

HUNTINGDON COUNTY HOSPITAL. Applications are invited for the post of HOUSE OFFICER (medical), vacant early August. Post recognised for pre-registration purposes. The selected candidate will be required to look after medical and pædiatric cases and may be called upon to give emergency anæsthetics.

Apply, with full particulars and names of 2 referees, to Secretary, County Hospital, Huntingdon.

ILKLEY. MIDDLETON HOSPITAL. (386 Beds.) ResiDENT SENIOR HOUSE OFFICER (surgical) required for Major Thoracic Surgical Unit at the above Hospital. Eminently suitable for person intending to take Membership or Fellowship examination.

Applications, stating age, nationality, qualifications and experience, to Hospital Secretary.

IPSWICH AND EAST SUFFOLK HOSPITAL (Anglesea-ROAD WING). (350 Beds.) Applications invited for post of CASUALTY OFFICER (Senior House Officer grade) vacant 1st September, 1958. Post recognised for F.R.C.S. examinations.

Applications, stating age and nationality, together with copies of recent testimonials, to Hospital Secretary.

IPSWICH AND EAST SUFFOLK HOSPITAL (Anglesea-ROAD WING). (350 Beds.) Applications invited for post of HOUSE SURGEON to Consultant General Surgeon. Post recognised for pre-registration and F.R.C.S. examinations.

Applications, with copies of recent testimonials, to Hospital Secretary.

IPSWICH. ST. HELEN'S HOSPITAL. (129 Beds for infectious diseases, pulmonary tuberculosis, long-stay orthopædics and geriatrics. The area Chest Clinic is in the Hospital.) HOUSE PHYSICIAN required (post-registration appointment). Accommodation available for married man.

Applications to JOHN WILLIAMS, Group Secretary, Ipswich Group Hospital Management Committee, at the Ipswich and East Suffolk Hospital (Anglesea-road Wing), Ipswich.

IVYBRIDGE, SOUTH DEVON. MOORHAVEN HOSPITAL. SENIOR HOUSE OFFICER. Post now vacant at this progressive hospital of 780 Beds. Full clinical service in all branches of psychiatry. Previous experience not required and teaching will be given. Accommodation for single person.

Application form, Hospital Annual Report and Official Guide to Plymouth from Physician-Superintendent.

KINGSTON HOSPITAL, Wolverton-avenue, Kingston-ON-THAMES. KINGSTON GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from suitably qualified medical officers for the post of SENIOR HOUSE OFFICER (pædiatrics) which is available on 1st October, 1958. The post is recognised for D.C.H. purposes.

Applications, stating age, qualifications and experience, with 2 recent testimonials, should reach the Physician-Superintendent of the Hospital within 7 days of the appearance of this advertisement.

KETTERING AND DISTRICT GENERAL HOSPITAL CASUALTY OFFICER (Senior House Officer). Recognised for F.R.C.S. The post, vacant early September, 1958, offers wide experience of all traumatic conditions including fractures and some orthopædic cases, with charge of 30 Beds.

Applications, accompanied by testimonials, to be sent to the Group Secretary, General Hospital, Kettering.

LANCASTER MOOR HOSPITAL, Lancaster. (Regional MENTAL HOSPITAL.) Applications are invited for the post of RESIDENT JUNIOR HOSPITAL MEDICAL OFFICER (Male or Female). Accommodation available for single or married candidates. The Hospital serves North Lancashire and the Lake District, is recognised for the D.P.M., and all facilities will be given for taking this examination. All modern methods of investigation and treatment are carried out and opportunity will be given to successful candidates to attend outpatients and become acquainted with up-to-date psychological and electro-encephalographic investigations. The post is for an initial period of 4 years, but renewable if service is satisfactory.

Apply to the Medical Superintendent, giving names of 2 referees, within 2 weeks of the appearance of this advertisement.

LANCASTER. ROYAL LANCASTER INFIRMARY. (240 Beds.) RESIDENT SENIOR HOUSE OFFICER (orthopædics). The successful applicant will work with an Orthopædic and Traumatic Specialist Unit. The post, recognised for F.R.C.S., is vacant 25th August next.

Applications, with names of 2 referees, to Group Secretary, Royal Lancaster Infirmary, Lancaster.

LANCASTER. ROYAL LANCASTER INFIRMARY. (240 Beds.) SENIOR HOUSE OFFICER (casualty). The successful applicant will work with the specialist orthopædic unit. The post, recognised for F.R.C.S., is vacant 18th August next.

Applications, with names of 2 referees, to Group Secretary, Royal Lancaster Infirmary, Lancaster.

LANCASTER. ROYAL LANCASTER INFIRMARY. (240 Beds.) SENIOR HOUSE OFFICER (medical). Duties include care of acute cases under the supervision of 2 Consultant Physicians and attendance at Consultative Clinics. The post is normally tenable for 1 year. The post is vacant 1st September next.

Applications, with names of 2 referees, to Group Secretary, Royal Lancaster Infirmary, Lancaster.

LANCASTER. ROYAL LANCASTER INFIRMARY. (240 Beds.) SENIOR HOUSE OFFICER (surgical). The successful applicant will work with a Consultant Surgical Unit and attend at Consultative Clinics. The post is recognised for F.R.C.S.

Applications, with names of 2 referees, to Group Secretary, Royal Lancaster Infirmary, Lancaster.

LANCASTER. ROYAL LANCASTER INFIRMARY. (240 Beds.) RESIDENT HOUSE OFFICER (surgical) (pre-registration). The successful applicant will work with a Consultant Surgical Unit and attend at Consultative Clinics. The post is recognised for F.R.C.S.

Applications, with names of 2 referees, to Group Secretary, Royal Lancaster Infirmary, Lancaster.

LEAMINGTON SPA. WARNEFORD GENERAL HOS-PITAL. (197 Beds.) Locum HOUSE PHYSICIAN required, 12th–25th September inclusive.

Apply Hospital Secretary.

LEEDS REGIONAL HOSPITAL BOARD. Registrar vacancies.

General Surgery

(*a*) Huddersfield Group (100 general surgical beds). Residential accommodation available. Duties mainly at Huddersfield Royal Infirmary. Recognised for F.R.C.S. May include some duties in the Casualty Department

(*b*) Hull Royal Infirmary (80 general surgical beds) and other hospitals in the Hull A group.

Orthopædic Surgery

(*a*) Woodlands Orthopædic Hospital, Rawdon (100 Beds) and Orthopædic Outpatient Department, Bradford Royal Infirmary. Offers excellent training in all branches of accident and orthopædic surgery. Resident—detached furnished house, suitable for married person ; also single accommodation available.

(*b*) Harrogate General Hospital (38 orthopædic beds). Non-resident.

Psychiatry

(*a*) Menston Hospital, near Leeds (2500 Beds). Residential accommodation can be provided for a single person. If desired, facilities for attendance at the University at Leeds will be provided if the successful candidate is studying for the D.P.M.

(*b*) Storthes Hall Hospital, Huddersfield (2750 Beds). Facilities for attendance at the Leeds University will be provided if the successful candidate is studying for the D.P.M.

Applications, stating age, qualifications and details of present and previous appointments with dates, together with the names and addresses of 3 referees, to the Secretary, Joint Registrars Committee, Park-parade, Harrogate, by 20th August, 1958.

LEEDS. THE UNITED LEEDS HOSPITALS. THE GENERAL INFIRMARY AT LEEDS. A vacancy exists for a REGISTRAR as a Trainee Radiologist or with D.M.R. Candidates with higher qualifications in medicine or surgery preferred. Terms and conditions of hospital medical and dental staffs apply. The appointment will be for 1 year in the first instance and renewable thereafter.

Applications, giving details of age, qualifications, previous posts with dates, and 3 names for reference, should be sent to the Sub-Dean, School of Medicine, Leeds, 1, not later than 8th August, 1958.

LEEDS. THE UNITED LEEDS HOSPITALS. THE GENERAL INFIRMARY AT LEEDS. REGISTRAR in Orthopædic Surgery required. Terms and conditions of service for medical and dental staff apply. Post tenable for 1 year in first instance.

Applications, stating age, experience, qualifications and 3 names for reference, to be sent to the Sub-dean, School of Medicine, Leeds, 2, by not later than 31st July, 1958.

LEEDS. THE UNITED LEEDS HOSPITALS. THE GENERAL INFIRMARY AT LEEDS. Applications are invited for the post of HOUSE SURGEON (pre-registration) to the Genito-urinary Department. Applications will be considered from candidates who have completed pre-registration, in which case the post will be paid at Senior House Officer level.

Applications, stating age, qualifications, experience and 3 names for reference, to be sent to the Secretary of the Board, The General Infirmary, Leeds, 1, as soon as possible.

LEEDS (near). WOODLANDS ORTHOPÆDIC HOS-PITAL, RAWDON, near LEEDS. (112 Beds.) SENIOR HOUSE OFFICER (resident) required. Post vacant 1st October, 1958.

Applications, stating age and experience, with copies of 2 testimonials, to the Secretary, The Royal Infirmary, Bradford, 9, Yorkshire.

LEICESTER GENERAL HOSPITAL. (454 Beds.) Sheffield REGIONAL HOSPITAL BOARD. Whole-time NON-RESIDENT MEDICAL REGISTRAR required. The post is interchangeable with a similar one at the Leicester Royal Infirmary, 1 year being spent at each hospital. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 7th August, 1958, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

LEIGH INFIRMARY, The Avenue, Leigh, Lancashire. (102 Beds.) REGISTRAR in General Surgery (resident) for the above Acute General Hospital. Post vacant September, recognised for the F.R.C.S.

Applications to Secretary, Wigan and Leigh Hospital Management Committee, Knowsley House, Wigan.

LENNOXTOWN, STIRLINGSHIRE. LENNOX CASTLE MATERNITY HOSPITAL. Applications are invited for the post of JUNIOR HOSPITAL MEDICAL OFFICER at above Hospital. Salary in accordance with recognised scale and appointment subject to National Health Service (Superannuation) Regulations, 1950.

Applications, stating age, sex, nationality, qualifications, experience and present appointment, together with names and addresses of 3 referees, to be submitted immediately to the Secretary, Board of Management, Lennox Castle, 113, Douglas-street, Glasgow, C.2.

LINCOLN COUNTY HOSPITAL, Sewell-road, Lincoln. (200 Beds.) Applications are invited for the post of RESIDENT HOUSE PHYSICIAN, Male or Female. This is an approved pre-registration post. If satisfactory, this post will be followed by appointment for a second 6 months as House Surgeon.

Applications, with copy testimonials, should be sent to the Secretary as soon as possible.

LIVERPOOL, 20. BOOTLE HOSPITAL. There is a vacancy for a HOUSE PHYSICIAN from late July. Post recognised for pre-registration service.

Applications, with names of 2 referees, to Secretary, Walton Hospital, Liverpool, 9.

LIVERPOOL. THE UNITED LIVERPOOL HOSPITALS. LIVERPOOL REGIONAL HOSPITAL BOARD. Applications are invited for a post of SENIOR REGISTRAR in Dermatology for the period 1st October, 1958–30th September, 1959. Annual reappointment thereafter until completion of the normal period of training will be considered without the need for further application. The allocation of time to teaching and non-teaching hospitals is 9 sessions and 2 sessions respectively.

Apply by 9th August, 1958, on form obtainable from the Secretary, The United Liverpool Hospitals, 80, Rodney-street, Liverpool, 1.

LIVERPOOL. THE UNITED LIVERPOOL HOSPITALS. LIVERPOOL REGIONAL HOSPITAL BOARD. Applications are invited for a post of SENIOR REGISTRAR in Anæsthetics for the period 1st October, 1958–30th September, 1959. Annual reappointment thereafter until completion of the normal period of training will be considered without need for further application. The post is one of 4 Senior Registrarships in Anæsthetics, and transfers between posts in regional and teaching hospitals are arranged to give experience in different branches of anæsthesia.

Apply by 9th August on form obtainable from the Secretary, The United Liverpool Hospitals, 80, Rodney-street, Liverpool, 1.

LIVERPOOL. THE UNITED LIVERPOOL HOSPITALS. ROYAL LIVERPOOL CHILDREN'S HOSPITAL. Applications are invited for the resident post of SENIOR HOUSE OFFICER in Pædiatrics for duty principally in the Cardiological Department for the period 1st October, 1958–30th September, 1959.

Apply by 9th August, 1958, on form obtainable from the Secretary, The United Liverpool Hospitals, 80, Rodney-street, Liverpool, 1.

LOUTH, LINCOLNSHIRE. COUNTY HOSPITAL. (215 Beds.) GRIMSBY HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER (surgical), vacant middle of August, 1958, at this General Hospital.

Applications, giving full details, together with the names of 2 referees, should be addressed to the Hospital Secretary.

LOUTH, LINCOLNSHIRE. COUNTY HOSPITAL. (215 Beds.) GRIMSBY HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER (surgical). Applications are invited for this pre-registration post, vacant middle of August, 1958.

Applications, giving full details, together with the names of 2 referees, should be addressed to the Hospital Secretary.

LUTON AND DUNSTABLE HOSPITAL. Children's ANNEXE, LUTON, BEDFORDSHIRE. PÆDIATRIC HOUSE OFFICER required. The post is recognised for the D.C.H. and as a second pre-registration post in medicine. The duties include both medical and surgical wards.

Applications, stating age, nationality, qualifications and experience, together with copies of 3 recent testimonials, to the Secretary, Luton and Hitchin Group Hospital Management Committee, St. Mary's Hospital, Luton.

LLWYNYPIA HOSPITAL, Llwynypia, Rhondda. (200 Beds, including acute medical and chronic sick beds. Serving area population of 112,000.)

(i) SENIOR HOUSE OFFICER (medicine).

(ii) HOUSE OFFICER (medicine).

Person appointed will also be required to undertake duties at the Glyncornel Hospital (56 chronic beds) and Tyntyla Isolation Hospital (42 Beds).

Applications, stating age, qualifications and experience, together with copies of 2 testimonials, to be sent immediately to the Group Secretary, Pontypridd and Rhondda Hospital Management Committee, Courthouse-street, Pontypridd.

MAIDENHEAD HOSPITAL, Berkshire. Applications invited for post of HOUSE SURGEON, vacant now. Pre-registration post.

Applications, stating age, qualifications and nationality, with names of 3 referees, to Secretary.

MAIDENHEAD HOSPITAL, Berkshire. Applications invited for the post of CASUALTY OFFICER (Senior House Officer grade), vacant now. Recognised for F.R.C.S.

Applications, stating age, qualifications, experience and nationality, with copies of testimonials or names of 3 referees, to Secretary.

MANCHESTER, 4. ANCOATS HOSPITAL. Applications are invited for the post of a SECOND CASUALTY OFFICER (Senior House Officer) now vacant. The post is recognised for F.R.C.S. Facilities for further study and practice in surgery are available in the Hospital. This is a busy General Hospital with a bed complement of 153 comprising general medicine, general surgery, traumatic and orthopædic surgery, and E.N.T. It has a busy Outpatient and Casualty Department with annual attendances at the Casualty Department of 9600.

Applications, with names of 2 referees, by 5th August, 1958, to Group Secretary, North Manchester Hospital Management Committee, Crumpsall Hospital, Manchester, 8.

MANCHESTER. BOOTH HALL CHILDREN'S HOSPITAL, BLACKLEY, MANCHESTER, 9. (380 Beds. Recognised for D.C.H.) RESIDENT SENIOR HOUSE OFFICER (general surgery).

Applications, giving names and addresses of 2 referees, to be sent to Group Secretary, from whom further particulars may be obtained.

MANCHESTER. BOOTH HALL CHILDREN'S HOSPITAL, BLACKLEY, MANCHESTER, 9. (380 Beds. Recognised for D.C.H.)

RESIDENT SENIOR HOUSE OFFICER (surgical). Duties orthopædic and E.N.T. Post vacant 1st August.

Applications, giving names and addresses of 2 referees, to be sent to Group Secretary, from whom further particulars may be obtained.

HOUSE OFFICER (surgical), pre- or post-registration. Duties mainly general surgery and neurosurgery. Post vacant.

Applications immediately, with usual particulars and copies of 2 recent testimonials, to Group Secretary.

MANCHESTER, 8. CRUMPSALL HOSPITAL. Applications are invited for the resident appointment of SENIOR HOUSE OFFICER in the Genitourinary Department, with general surgical work in another unit at the above Hospital. Recognised for F.R.C.S. Vacant 9th August, 1958.

Applications, with names of 2 referees, by 2nd August, 1958, to Group Secretary, North Manchester Hospital Management Committee, Crumpsall Hospital, Manchester, 8.

MANCHESTER. MONSALL HOSPITAL, Newton Heath, MANCHESTER, 10. RESIDENT SENIOR HOUSE OFFICER required for infectious diseases hospital, which is a regional centre for poliomyelitis. There are also 150 Beds for the treatment of tuberculosis and other chest diseases.

Applications, with names of 2 referees, to Deputy Group Secretary, Monsall Hospital, from whom further particulars may be obtained.

MANCHESTER REGIONAL HOSPITAL BOARD. Applications are invited for the post of REGISTRAR in General Medicine to the Burnley and District Group of hospitals. Excellent resident accommodation is available for single or married applicants. The post provides wide experience in general medicine.

Applications, together with the names and addresses of 2 referees, should be addressed to the Group Secretary, Burnley General Hospital.

MANCHESTER REGIONAL HOSPITAL BOARD. Bolton DISTRICT GENERAL HOSPITAL. (607 Beds, including 107 for obstetrics and 45 for gynæcology.) RESIDENT REGISTRAR in Obstetrics and Gynæcology. Recognised for M.R.C.O.G. and D.Obst.R.C.O.G.

Applications, stating age, nationality, qualifications, experience and the names of 2 referees, to Group Secretary, Bolton and District Hospital Management Committee, The Royal Infirmary, Bolton.

MANCHESTER REGIONAL HOSPITAL BOARD. Applications are invited for the resident post of REGISTRAR in General Surgery in the Burnley and District Hospital Management Committee with main duties at the Reedyford Memorial Hospital, Nelson. The post is recognised for F.R.C.S. and good accommodation is available in a modern self-contained flat. Post available 10th August.

Applications, together with the names and addresses of 2 referees, should be addressed to the Group Secretary, Burnley General Hospital, Burnley.

MANCHESTER. WEST MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. ECCLES AND PATRICROFT HOSPITAL, ECCLES. (General hospital—47 Beds.) RESIDENT SENIOR HOUSE OFFICER required. The work of the Hospital is mainly surgical and there is a busy Casualty Department. The person appointed will be one of 2 resident Senior House Officers.

Applications, giving full details, together with names and addresses of 2 referees, to Group Secretary, Park Hospital, Davyhulme, Manchester.

MANCHESTER. UNITED MANCHESTER HOSPITALS. MANCHESTER ROYAL EYE HOSPITAL. Applications are invited for the post of SENIOR HOUSE OFFICER.

Application forms may be obtained from the undersigned.

H. R. NORTH, General Superintendent.

Manchester Royal Eye Hospital.

MANCHESTER. UNITED MANCHESTER HOSPITALS. MANCHESTER ROYAL EYE HOSPITAL. Applications are invited for the post of RESIDENT SURGICAL OFFICER (Registrar grade).

Application forms may be obtained from the undersigned.

H. R. NORTH, General Superintendent.

Manchester Royal Eye Hospital.

MANCHESTER. UNITED MANCHESTER HOSPITALS. MANCHESTER ROYAL INFIRMARY, MANCHESTER, 13. SENIOR HOUSE OFFICER (surgical) to commence on 13th October, 1958. Whole-time, mainly non-resident training post, tenable for 6 months, renewable for a second 6 months. Duties allotted in orthopædic, surgical outpatients and general surgical units in rotation. Resident alternate nights for 3 months when attached to orthopædic unit.

Application form obtainable from the Secretary, to be returned by 9th August, 1958.

MANCHESTER, 20. WITHINGTON HOSPITAL. South MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of RESIDENT CLINICAL PATHOLOGIST (Senior House Officer grade) which will become vacant on 1st September, 1958. Previous experience in pathology not essential, the post affording opportunities for gaining experience in all branches of clinical pathology.

Applications, stating age, qualifications, present post, experience and the names of 2 referees, to be forwarded to the Group Secretary, Withington Hospital, Manchester, 20.

MEXBOROUGH. MONTAGU HOSPITAL AND ANNEXE. (168 Beds and 30 Beds.) RESIDENT HOUSE SURGEON.

Applications to the Secretary, Hospital Management Committee, "Fern Bank", Doncaster-road, Rotherham.

MEXBOROUGH. MONTAGU HOSPITAL AND ANNEXE. (198 Beds.) Locum SENIOR HOUSE OFFICER (casualty and orthopædics). £150 p.a. residential emoluments.

Applications to the Secretary to the Committee, "Fern Bank", Doncaster-road, Rotherham.

MID-GLAMORGAN HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the following medical staff vacancies:—

Neath General Hospital (412 Beds)

SENIOR HOUSE OFFICER (traumatic surgery and casualty).

SENIOR HOUSE OFFICER (pathology).

Bridgend General Hospital, Quarella-road, Bridgend (318 Beds)

SENIOR HOUSE OFFICER (E.N.T.).

Port Talbot General Hospital, Hospital-road, Port Talbot (85 Beds)

SENIOR HOUSE OFFICER (surgery).

Applications, naming 2 referees, to be addressed to the Group Secretary of the Committee, 8, Wind-street, Neath.

MORECAMBE. QUEEN VICTORIA HOSPITAL. Locum SENIOR HOUSE OFFICER (obstetrics gynæcology). The successful applicant, required until 31st August next, will be attached to the Specialist Unit.

Apply immediately, giving names of 2 referees, to Group Secretary, Royal Lancaster Infirmary, Lancaster.

NANTWICH. BARONY HOSPITAL. (300 Beds.) OBSTETRICS HOUSE OFFICER (recognised pre-registration post), vacant 2nd August, 1958. Recognised for D.Obst.R.C.O.G. and M.R.C.O.G. Salary and conditions of service in accordance with Whitley Council scale.

Applications, stating age, qualifications, &c., with names of 2 referees, to be sent to the Group Secretary, South Cheshire Hospital Management Committee, Barony Hospital, Nantwich, within 10 days after publication.

NEWBURY DISTRICT HOSPITAL, Newbury, Berkshire. Locum RESIDENT SURGICAL OFFICER (Senior House Officer grade) required for period 1st–14th September, 1958.

Applications to Secretary.

NEWPORT AND EAST MONMOUTHSHIRE GROUP. Pre-registration HOUSE OFFICER posts are available about 1st August :—

Royal Gwent Hospital, Newport (260 Beds)

1 surgical (recognised F.R.C.S.).

1 gynæcological.

St. Woolos Hospital, Newport (379 Beds)

1 medical.

1 surgical (recognised F.R.C.S.).

Pontypool and District Hospital (126 Beds)

1 medical (includes pædiatrics).

Write, quoting 2 referees, and post preferred, to T. A. JONES, Group Secretary, 64, Cardiff-road, Newport, Mon.

NEWPORT, I.W. ST. MARY'S HOSPITAL. Isle of Wight GROUP HOSPITAL MANAGEMENT COMMITTEE. RESIDENT HOUSE SURGEON (Senior House Officer grade at £819 10s. p.a., or pre-registration grade at £467 10s. (€522 10s. p.a.) required at once. Married accommodation available if needed. Post recognised for F.R.C.S.

Applications to Hospital Secretary immediately.

NEWCASTLE REGIONAL HOSPITAL BOARD. Senior REGISTRAR PSYCHIATRIST (whole-time), resident, at St. Nicholas Hospital, Gosforth, Newcastle upon Tyne. Married or single accommodation available. The appointment is for a period of 4 years, subject to review annually. The person appointed, depending on previous experience, may be required to spend up to 2 of the 4 years in the Regional Hospital Board's Teaching and Research Unit at the Newcastle General Hospital. Further particulars from Regional Psychiatrist.

Applications, with names and addresses of 3 referees, to Regional Psychiatrist, Regional Hospital Board, Benfield-road, Newcastle upon Tyne, 6, within 14 days.

NEWCASTLE REGIONAL HOSPITAL BOARD. Registrar PSYCHIATRIST, whole-time, resident at St. George's Hospital, Morpeth (1277 Beds). Married or single, furnished or unfurnished, accommodation available. Good experience and training in psychiatry offered. Facilities are available for the appointee to take the Durham University D.P.M. course. Further particulars from Regional Psychiatrist.

Applications, with names and addresses of 3 referees, to Regional Psychiatrist, Regional Hospital Board, Benfield-road, Newcastle upon Tyne, 6, within 14 days.

NEWCASTLE GENERAL HOSPITAL. (835 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER in the Cardiovascular Department at this Hospital. Vacant 23rd September, 1958.

Applications, stating qualifications and experience, together with names and addresses of 2 referees, should be sent to the Secretary, Newcastle General Hospital, Westgate-road, Newcastle upon Tyne, 4.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. OPHTHALMIC REGISTRAR (whole-time), required mainly for duties in the Ophthalmic Unit (25 Beds) at Edgware General Hospital, Edgware, plus 1 session per week at Colindale Hospital and 2 sessions per week at Wealdstone School Clinic.

Application forms obtainable from and returnable to Group Secretary, Hendon Group Hospital Management Committee, Edgware General Hospital, Edgware, Middlesex, by 5th August, 1958.

NOTTINGHAM CITY HOSPITAL. (811 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER (general surgery) vacant early August. The post is approved for the F.R.C.S. The officer appointed will also be required to undertake certain duties in the Orthopædic Department. A deduction of £150 p.a. will be made for residential emoluments.

Applications, stating age, nationality, qualifications and experience, together with copies of not more than 3 testimonials, to be sent to the Hospital Secretary, City Hospital, Hucknall-road, Nottingham.

NOTTINGHAM CITY HOSPITAL. (734 Beds. Recognised for D.Path.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT or NON-RESIDENT REGISTRAR (pathology) required from 1st October. Post includes duties at other hospitals in the Nottingham Group. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 7th August, 1958, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

NOTTINGHAM GENERAL HOSPITAL. Senior House OFFICER (surgery) required. Duties to commence 26th July, 1958.

Applications, stating age, qualifications, experience and nationality, together with copies of testimonials, to be sent to Group Secretary, General Hospital, Nottingham.

NOTTINGHAM GENERAL HOSPITAL. 2 House Surgeons. Pre-registration. Duties to commence as soon as possible.

Applications, stating age, qualifications and experience, together with copies of testimonials, to be sent to Group Secretary.

NOTTINGHAM GENERAL HOSPITAL. (441 Beds. Recognised for the F.F.A. R.C.S.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT or NON-RESIDENT REGISTRAR (anæsthetics) required. Appointee will be 1 of a team of 4 who also cover Nottingham Hospital for Women and Nottingham Children's Hospital on a 3-monthly rota.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 7th August, 1958, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

OLDHAM AND DISTRICT GENERAL HOSPITAL. Applications are invited for the posts of HOUSE SURGEONS, becoming vacant on 2nd August and 24th August, 1958. The posts are recognised for pre-registration purposes and F.R.C.S.

Applications should be forwarded to the Group Secretary, Oldham and District Hospital Management Committee, Central Offices, Rochdale-road, Oldham, quoting Ref. No. G/40.

OLDHAM ROYAL INFIRMARY. Applications are invited for the posts of HOUSE SURGEONS, 1 vacant immediately and 1 becoming vacant on 1st August, 1958. The posts are recognised for pre-registration purposes and F.R.C.S.

Applications should be forwarded to the Group Secretary, Oldham and District Hospital Management Committee, Central Offices, Rochdale-road, Oldham, quoting Ref. No. G/39.

OXFORD REGIONAL HOSPITAL BOARD. Registrar, whole-time, in E.N.T. Surgery at Northampton General Hospital (482 Beds). Modern E.N.T. Unit of 36 Beds with separate operating-theatre. Residence optional. Previous experience essential. Vacant 1st October for 1 year, eligible for extension to 2 years.

Applications on forms obtainable from Secretary, Registrars Committee, 43, Banbury-road, Oxford, should reach him by 6th August.

OXFORD. THE UNITED OXFORD HOSPITALS. Applications are invited for the post of NON-RESIDENT REGISTRAR in the Department of Pathology, Radcliffe Infirmary, to commence as soon as possible. There will be opportunities for working in all the departments, including neuropathology.

Applications, on forms obtainable from the Administrator, Radcliffe Infirmary, Oxford, should be received not later than 3 weeks after the appearance of this advertisement.

PONTEFRACT AND CASTLEFORD HOSPITAL MANAGEMENT COMMITTEE. ANÆSTHETIST (Junior Hospital Medical Officer) required for duties at hospitals throughout the Group. Post resident or non-resident.

Applications, giving details of experience and the names and addresses of 2 referees, to the Group Secretary, Great Northern House, Salter-row, Pontefract, Yorkshire.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL, FREEDOM FIELDS. Central Casualty Department. RESIDENT SENIOR HOUSE OFFICER in Casualty, vacant immediately. Recognised for the F.R.C.S.

Applications, with names of 3 referees, to be sent to the Group Secretary.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL.

SENIOR HOUSE OFFICER in Anæsthetics, vacant September, 1958. Recognised for the D.A. and F.F.A. R.C.S.

HOUSE SURGEONS, pre-registration posts (2) both vacant immediately. Recognised for the F.R.C.S. Greenbank Road Hospital.

In all cases send names of 3 referees, also stating age, nationality, qualifications and experience, to the Group Secretary, 7, Nelson-gardens, Stoke, Plymouth.

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE.

Saint Mary's Hospital

Surgery (120 surgical beds)

HOUSE OFFICER (pre-registration). Vacant 12th August.

Royal Portsmouth Hospital (104 orthopædic beds)

SENIOR HOUSE OFFICER required in Orthopædic Department. Vacant 2nd August.

ORTHOPÆDIC HOUSE OFFICER (pre-registration). Vacant now.

Queen Alexandra Hospital

General Medicine and Dermatology (78 medical beds and 24 dermatology beds)

SENIOR HOUSE OFFICER. Vacant now.

Applications, stating age, experience and qualifications, together with the names of 2 referees, should be forwarded as soon as possible to E. H. HURST, St. Mary's Hospital, Milton-road, Portsmouth.

PRESTON ROYAL INFIRMARY. (400 Beds.) Senior SURGICAL HOUSE OFFICER. Post recognised for F.R.C.S. Vacant 1st September, 1958.

Applications, with names of 2 referees, to Group Secretary, Preston and Chorley Hospital Management Committee, Royal Infirmary, Preston.

READING. BATTLE HOSPITAL. (381 Beds.) Reading AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the post of RESIDENT JUNIOR HOUSE SURGEON (pre- or post-registration) required in the Accident and Orthopædic Department. F.R.C.S. recognised. Also casualty duties. Vacant immediately.

Apply, stating age, qualifications with dates, nationality, present post, with copy of recent testimonial, to Secretary.

READING. ROYAL BERKSHIRE HOSPITAL. (337 Beds.) Applications are invited from registered and provisionally registered medical practitioners for the resident post of HOUSE PHYSICIAN in the Paediatric Department, vacant 1st September, 1958, and tenable for 6 months.

Write, stating age, qualifications with dates, nationality, present post, with copies of 2 recent testimonials, to Secretary, Royal Berkshire Hospital, Reading.

READING. ROYAL BERKSHIRE HOSPITAL. Applications are invited from registered and provisionally registered medical practitioners for 2 posts as RESIDENT HOUSE PHYSICIAN, vacant 1st September, 1958, and tenable for 6 months.

Write, stating age, qualifications with dates, nationality, present post, with copies of 2 recent testimonials, to Secretary, Royal Berkshire Hospital, Reading.

REDHILL. EAST SURREY HOSPITAL, Shrewsbury-road, REDHILL, SURREY. RESIDENT HOUSE SURGEON (Male). Pre-registration appointment vacant immediately. Opportunity of House Physician's post to follow if required.

Applications to Hospital Secretary.

RHYL. ROYAL ALEXANDRA HOSPITAL. (138 Beds.) Applications are invited from registered medical practitioners for the post of HOUSE OFFICER in Paediatrics and General Medicine, at the above Hospital. Post tenable for 6 months.

Applications, stating age and experience, with copies of 2 testimonials, to be sent to the Group Secretary, Clwyd and Deeside Hospital Management Committee, Rhiana, Russell-road, Rhyl.

ROCHDALE AND DISTRICT HOSPITAL MANAGE-MENT COMMITTEE. HOUSE OFFICER (surgery) required for busy Surgical Unit. Post recognised for F.R.C.S. qualification and offering excellent experience.

Apply at once to Group Secretary, Central Offices, Birch Hill Hospital, Rochdale, Lancs.

ROCHDALE AND DISTRICT HOSPITAL MANAGE-MENT COMMITTEE. HOUSE PHYSICIAN required at Birch Hill Hospital. Resident post available in July.

Apply at once to Group Secretary, Central Offices, Birch Hill Hospital, Rochdale, Lancs.

ROCHDALE GROUP OF HOSPITALS. Senior House OFFICER in Anæsthetics required. 1-year appointment recognised for the D.A. Post vacant August.

Applications to the Group Secretary, Birch Hill Hospital, Rochdale.

ROCHESTER, KENT. ST. BARTHOLOMEW'S HOS-PITAL. MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of CASUALTY OFFICER (Senior House Officer grade). 1 of 2 in the department. Post vacant now and tenable for 6 months or 1 year. Recognised for F.R.C.S. Salary £819 10s. p.a.

Applications, stating age, nationality, qualifications and experience, with recent testimonials, to Hospital Secretary.

ROMFORD, ESSEX. VICTORIA HOSPITAL. (99 Beds.) TEMPORARY SURGICAL REGISTRAR (Male) required immediately.

Applications to Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) RESIDENT HOUSE PHYSICIANS (2) required from 3rd and 10th September, 1958, respectively. Open to either pre-registration applicants or to fully registered practitioners.

Apply immediately to Group Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) RESIDENT HOUSE SURGEON required from 16th September, 1958, in the Obstetric and Gynæcological Unit consisting of 96 obstetric beds and 52 gynæcological beds. Post is approved for pre-registration purposes and recognised for D.Obst.R.C.O.G. and M.R.C.O.G.

Apply immediately to Group Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) RESIDENT HOUSE SURGEONS (2) required from 24th August and 10th September, 1958, respectively, in the General Surgical Unit. Recognised for F.R.C.S. Open to either pre-registration applicants or to fully registered practitioners. This very active Unit of a total of approximately 180 Beds affords ample opportunities for candidates to obtain first-class tuition and experience. The candidates appointed will be attached to a unit of approximately 60 Beds.

Apply immediately to Group Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) ORTHOPÆDIC HOUSE SURGEON (resident) required in the Orthopædic and Accident Unit. The service consists of 100 Beds equally divided between traumatic surgery and "cold" orthopædics. Post is recognised for pre-registration purposes and for F.R.C.S.

Applications to be sent to Group Secretary, Romford Hospital Management Committee, Oldchurch Hospital, as soon as possible.

ROMFORD, ESSEX. RUSH GREEN HOSPITAL. (301 Beds.) RESIDENT SENIOR HOUSE OFFICER in Anæsthetics (Male or Female) required from 1st September, 1958. Resident or non-resident. Post affords good experience; modern equipment, twin theatre. Recognised for D.A. and F.F.A. R.C.S.

Applications to Medical Superintendent. Hospital may be seen by arrangement. Telephone: Romford 46066.

ROMFORD GROUP HOSPITAL MANAGEMENT COMMITTEE. CLINICAL ASSISTANT required on the staff of the Regional Ophthalmic Centre at Oldchurch Hospital, Romford, to undertake 1 outpatient session per week, Thursday morning, in the Eye Clinic at Tilbury and Riverside Hospital, Tilbury.

Applications to be sent to Group Secretary, Oldchurch Hospital, Romford, as soon as possible.

ROTHERHAM HOSPITAL, Doncaster-gate. (161 Beds.) MOORGATE GENERAL HOSPITAL, ROTHERHAM. (342 Beds, 38 Cots.) RESIDENT HOUSE SURGEON (Casualty, E.N.T. and Eye Departments).

Applications to the Secretary, Hospital Management Committee, "Fern Bank", Doncaster-road, Rotherham.

ROTHERHAM HOSPITAL, Doncaster-gate, Rotherham. (161 Beds.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT MEDICAL REGISTRAR required 16th September. Duties also at Moorgate General Hospital, Rotherham (342 Beds). Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 4th August, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

ROTHERHAM HOSPITAL and ROSEHILL HOSPITAL ANNEXE. (161 Beds and 26 Beds.) RESIDENT HOUSE PHYSICIAN.

Applications to the Secretary, Hospital Management Committee, "Fern Bank", Doncaster-road, Rotherham.

ROTHERHAM. MOORGATE GENERAL HOSPITAL. (342 Beds, 38 Cots.) RESIDENT HOUSE PHYSICIAN.

Applications to the Secretary, Hospital Management Committee, "Fern Bank", Doncaster-road, Rotherham.

ROTHERHAM. MOORGATE GENERAL HOSPITAL. (342 Beds. Recognised for the F.R.C.S. examination.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT SURGICAL REGISTRAR required 1st October. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 7th August, 1958, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

SALISBURY GENERAL HOSPITAL. Orthopædic Department. Applications are invited for the post of SENIOR RESIDENT HOUSE SURGEON or RESIDENT HOUSE SURGEON, vacant 11th September. Appointment recognised for pre-registration candidates, and also Fellowship regulations. Department has over 50 Beds and large outpatient turnover, dealing with fractures and all types of orthopædic surgery.

Applications, stating age, nationality, qualifications and experience, and naming 2 referees, to the Group Secretary, Salisbury Group Hospital Management Committee, Odstock Hospital, Salisbury.

SALISBURY GENERAL HOSPITAL. Applications are invited for the appointment of RESIDENT HOUSE SURGEON/HOUSE PHYSICIAN to run consecutively in this order for a period of 6 months in each post from 19th August. Posts open to pre-registration candidates.

Apply, naming 2 referees, to Group Secretary, Salisbury Group Hospital Management Committee, Odstock Hospital, Salisbury.

SCARBOROUGH HOSPITAL. (190 Beds.) Applications are invited for the following HOUSE OFFICER posts for 6 months commencing 1st August, 1958:—

General surgical (recognised for F.R.C.S.).
Surgical (E.N.T., general orthopædics).
Surgical (midwifery, gynæcology, ophthalmology).

Applications should be forwarded to the Hospital Secretary, Scalby-road, Scarborough.

SCOTLAND. SOUTH-EASTERN REGIONAL HOSPITAL BOARD. REGISTRAR at the Department of Psychological Medicine, Royal Hospital for Sick Children, Edinburgh. During the tenure of the post opportunities for interchange of duty and training at other centres in the region may be available under the joint training scheme of the South-Eastern Regional Hospital Board and the Department of Psychological Medicine of the University of Edinburgh.

Apply, giving particulars of age, qualifications and previous experience, and the names of 2 referees, to the Secretary, 11, Drumsheugh-gardens, Edinburgh, 3, by 16th August, 1958.

SCOTLAND. SOUTH-EASTERN REGIONAL HOSPITAL BOARD. REGISTRAR in General Surgery at the Dunfermline and West Fife Hospital. The Hospital has 117 surgical beds, including those for E.N.T., ophthalmology, gynæcology, and orthopædic surgery.

Apply, giving particulars of age, qualifications and previous experience, and the names of 2 referees, to the Secretary, 11, Drumsheugh-gardens, Edinburgh, 3, by 16th August, 1958.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the following appointments, which will be for 1 year in the first instance:—

SENIOR REGISTRAR in Hæmatology based at Stobhill General Hospital, Glasgow.
REGISTRAR in E.N.T. Surgery based at the Southern General Hospital, Glasgow.
REGISTRAR in Ophthalmology based at the Eye Infirmary, Glasgow.
REGISTRAR in Psychiatry based at Bellsdyke Mental Hospital, Larbert.
REGISTRAR in Psychiatry based at Woodilee Mental Hospital, Lenzie, near Glasgow. A small flat is available.
REGISTRAR in Radiotherapy based at the Royal Infirmary, Glasgow.

Applications (12 copies), stating date of birth, qualifications, experience, present appointment, and the names of 3 referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent-street, Glasgow, C.2, by 9th August, 1958.

SCUNTHORPE. WAR MEMORIAL HOSPITAL. (262 Beds.) Vacancy early August for HOUSE SURGEON—Senior House Officer pre-registration (general surgery and gynæcology). Modern well-equipped Hospital offering good experience.

Applications, naming 2 referees, to Group Secretary, Scunthorpe Hospital Management Committee.

SCUNTHORPE. WAR MEMORIAL HOSPITAL. (262 Beds.) Immediate vacancy HOUSE SURGEON (pre-registration or Senior House Officer), mainly general surgery with some E.N.T. and casualty relief. Offers extensive experience of pre- and post-operative surgery.

Applications, naming 2 referees, to Group Secretary, Scunthorpe Hospital Management Committee.

SHREWSBURY. CROSS HOUSES HOSPITAL. Obstetric HOUSE SURGEON. Pre-registration post. Vacant 1st September, 1958.

Applications, with copy testimonials, to Group Secretary, Shrewsbury Hospital Group, Royal Salop Infirmary, Shrewsbury.

SHREWSBURY. ROYAL SALOP INFIRMARY/COPTHORNE HOSPITAL. (500 Beds.) HOUSE SURGEON. Vacant immediately. Pre-registration candidates eligible. Recognised for the F.R.C.S.

Applications, with copy testimonials, to Group Secretary, Shrewsbury Hospital Group, Royal Salop Infirmary, Shrewsbury.

SHEFFIELD, 5. CITY GENERAL HOSPITAL. Applications are invited for the resident post of HOUSE PHYSICIAN in General Medicine (Intern or Senior House Officer). Vacant now.

Apply, giving full details of experience and the names of 2 persons for reference, to the Group Secretary, Lyndhurst, Nether Edge Hospital, Sheffield, 11.

SHEFFIELD. CITY GENERAL HOSPITAL. (858 Beds. Recognised for F.R.C.S. examination.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT or NON-RESIDENT CASUALTY REGISTRAR required immediately. If non-resident the successful candidate to reside at the Hospital when on duty (including "on call" duty). Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 7th August, 1958, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

SHEFFIELD. THE UNITED SHEFFIELD HOSPITALS. Locum ANÆSTHETIC REGISTRAR (whole-time) required for the month of August.

Applications, with full details and names of 2 referees, to Chief Administrative Officer, The United Sheffield Hospitals, West-street, Sheffield, 1.

SHEFFIELD. THE UNITED SHEFFIELD HOSPITALS. CHILDREN'S HOSPITAL. REGISTRAR in Pathology required 1st October, 1958, to work in Department of Pathology and to collaborate in the teaching and research activities of the laboratory.

Applications, with full details and names of 3 referees, to the Chief Administrative Officer, The United Sheffield Hospitals, West-street, Sheffield, 1, by 31st July, 1958.

SHEFFIELD. THE UNITED SHEFFIELD HOSPITALS. CHILDREN'S HOSPITAL. RESIDENT CLINICAL PATHOLOGIST (Senior House Officer grade) required 1st October, 1958. Post suitable for person training in pædiatrics or pathology. Holder expected to attend clinical rounds and meetings and cooperate in research programmes of the department.

Applications, with full details and names of 2 referees, to the Superintendent, Children's Hospital, Western Bank, Sheffield, 10, by 31st July, 1958.

SLOUGH, BUCKINGHAMSHIRE. UPTON HOSPITAL. Locum HOUSE PHYSICIAN, pre-registration post, required 29th July.

Applications, with names of 2 referees, to Secretary.

SLOUGH, BUCKINGHAMSHIRE. UPTON HOSPITAL. HOUSE PHYSICIAN required for post vacant 29th July. Pre-registration appointment offering considerable experience in general acute medical work.

Applications, with names of 2 referees, to Secretary.

SLOUGH, BUCKINGHAMSHIRE. UPTON HOSPITAL. HOUSE SURGEON required in Department of Obstetrics and Gynæcology to work with part-time Registrar. Post not recognised for D.Obst.R.C.O.G.

Applications, with names of 2 referees, to Secretary.

SLOUGH, BUCKINGHAMSHIRE. UPTON HOSPITAL. Locum SENIOR SURGICAL REGISTRAR required 11th–30th August.

Applications, with names of 2 referees, to Secretary.

SHOREHAM-BY-SEA, SUSSEX. SOUTHLANDS HOSPITAL. HOUSE SURGEON required for general surgical duties, pre- or post-registration. Post vacant immediately; recognised by R.C.S. for Fellowship.

Applications to Secretary, Southlands Hospital, Shoreham-by-Sea. A. V. OAKTON, Group Secretary,
Worthing Group Hospital Management Committee.

SOUTHAMPTON GENERAL HOSPITAL. (465 Beds. Recognised for the Membership and Diploma examinations for the R.C.O.G.) RESIDENT HOUSE SURGEON to the Gynæcological and Obstetric Unit required mid-August.

Applications, with copies of recent testimonials, should be forwarded as soon as possible to the Group Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTHAMPTON. ROYAL SOUTH HANTS HOSPITAL (274 Beds) and SOUTHAMPTON GENERAL HOSPITAL (465 Beds). SENIOR HOUSE OFFICER (E.N.T.) required. This post is recognised for the F.R.C.S. (Eng.) and D.L.O. examinations and provides experience in all branches of E.N.T. work. The Group includes a diagnostic and distributing hearing-aid centre.

Applications, with copies of recent testimonials, should be forwarded as soon as possible to the Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTHAMPTON. ROYAL SOUTH HANTS HOSPITAL. (274 Beds.) RESIDENT HOUSE SURGEONS required mid-August. Pre-registration candidates are eligible. The posts are recognised for F.R.C.S. and offer exceptional opportunities for general experience with a Senior Surgical Registrar in a busy acute unit of 70 Beds.

Applications, with copies of recent testimonials, to Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTH EAST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of REGISTRAR in Dental Surgery to the Tunbridge Wells Group of hospitals as from 1st October, 1958. The duties will be mainly carried out in the Special Jaw Centre of the Plastic and Maxillo Facial Unit at East Grinstead. A higher dental qualification is desirable. The appointment will be in accordance with the terms and conditions of service of hospital medical and dental staff (England and Wales), and will be for 1 year in the first instance.

Applications, giving particulars of age, qualifications and experience, with relevant dates, together with the names and addresses of 2 referees, to be sent to the Secretary, Registrars Committee, South East Metropolitan Regional Hospital Board, 11, Portland-place, London, W.1, not later than 16th August, 1958.

SOUTHEND-ON-SEA. GENERAL HOSPITAL. Applications are invited from fully registered practitioners for the post of RESIDENT HOUSE PHYSICIAN (House Officer grade). Post vacant 2nd September, 1958. Appointment primarily to Pædiatric Department, with duties in Cardiological and Skin Departments. Post recognised for D.C.H.

Applications, stating age, qualifications and previous experience, with copies of recent testimonials, should reach the undersigned at the hospital by 7th August, 1958.

J. C. FIELD, Secretary.

ST. ALBANS CITY HOSPITAL. (384 Beds.) North West METROPOLITAN REGIONAL HOSPITAL BOARD. Whole-time ANÆSTHETIC REGISTRAR required. Post recognised for F.F.A.R.C.S. and D.A., and vacant about 27th August, 1958. Hospital may be visited by direct appointment.

Application forms obtainable from and returnable to Secretary, Mid Herts Group Hospital Management Committee, Bleak House, Catherine-street, St. Albans, Herts.

ST. ALBANS (near), HERTFORDSHIRE. SHENLEY HOSPITAL. Applications are invited for the post of SENIOR HOUSE OFFICER (Psychiatrist), the vacancy arising in mid-July, for 1 year in the first instance, at Shenley Hospital, 16 miles from London. Opportunity for work with neurotic as well as psychotic patients. Successful applicant can live out or can have single accommodation in the Hospital. The Hospital may be visited by appointment.

Applications to the Medical Superintendent.

ST. HELENS AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. ST. HELENS HOSPITAL. (196 Beds.) Applications are invited for the post of RESIDENT HOUSE SURGEON, which is recognised for pre-registration service and for the F.R.C.S. examinations. The appointment will be made in the Senior House Officer grade in the case of a candidate who has already held 2 pre-registration posts.

Applications, stating age, date of qualification and experience, and giving 2 names for reference, should be forwarded to N. RICHARDS, Group Secretary, Whiston Hospital, Prescot, Lancs, immediately.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. (815 Beds.) STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. HOUSE PHYSICIAN (general medicine—pre-registration appointment) required. The post offers wide experience in general medicine and cardiology.

Applications to the Hospital Secretary.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. (815 Beds.) STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (general surgery) required immediately. The post offers wide experience in general, thoracic and cardiac surgery. No casualty work. Recognised for the F.R.C.S.

Applications to the Hospital Secretary.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. BIRMINGHAM REGIONAL HOSPITAL BOARD. RESIDENT HOUSE OFFICER (obstetrics and gynæcology) required, vacant towards end of August. Pre-registration post. Recognised for M.R.C.O.G. and D.Obst.R.C.O.G.

Applications to Hospital Secretary as soon as possible.

STOKE-ON-TRENT. NORTH STAFFORDSHIRE ROYAL INFIRMARY. HOUSE OFFICER (general surgery) required. Recognised for F.R.C.S. Post vacant very shortly.

Detailed applications, with copy testimonials, to Hospital Secretary, North Staffordshire Royal Infirmary, Stoke-on-Trent.

STOKE-ON-TRENT. NORTH STAFFORDSHIRE ROYAL INFIRMARY. HOUSE PHYSICIAN (general medicine and dermatology) required. Pre-registration post. Post vacant very shortly.

Detailed applications, with copy testimonials, to Hospital Secretary, North Staffordshire Royal Infirmary.

STIRLING AND CLACKMANNAN HOSPITALS BOARD OF MANAGEMENT and NATIONAL HEALTH SERVICE EXECUTIVE COUNCIL FOR THE COUNTIES OF STIRLING AND CLACKMANNAN. Applications are invited for 2 joint appointments as SENIOR HOUSE OFFICER in Surgery at Clackmannan County Hospital and TRAINEE GENERAL PRACTITIONER in the Alloa area. The appointments will be for 2 years, and the successful applicants will spend a total of 1 year at Clackmannan County Hospital and 1 year as a Trainee General Practitioner with a selected principal. The salary for the post will be £819 10s. for the first year and £850 for the second year. A car allowance may be payable in addition.

Applications, with names of 2 referees, should be sent to the Group Medical Superintendent, Royal Infirmary, Stirling, not later than 30th August, 1958.

STOCKPORT. STEPPING HILL HOSPITAL. (529 Beds.) Applications are invited for the post of RESIDENT SENIOR HOUSE OFFICER (Medicine), vacant 18th August, 1958.

Applications, stating age, experience and qualifications, together with copies of 2 testimonials, to be addressed to the Group Secretary, Stockport and Buxton Hospital Management Committee, 59B, Shaw-heath, Stockport.

SULLY HOSPITAL, Sully, Glamorganshire. (Thoracic centre of 324 Beds.) SENIOR HOUSE OFFICER (surgical)—applicants primarily interested in general surgery considered. Experience will be gained in investigation and treatment of chest and heart conditions.

Form of application from Group Secretary, 44, Cathedral-road, Cardiff.

SUTTON AND CHEAM HOSPITAL, Cotswold-road, SUTTON, SURREY. RESIDENT SENIOR HOUSE OFFICER (Casualty Officer). Post recognised for F.R.C.S. Vacant 27th August.

Applications, stating age, qualifications and experience, with copies of recent testimonials and the names of 2 referees, to the Group Secretary, St. Helier Hospital, Carshalton, Surrey.

SWANSEA HOSPITAL, Swansea. (413 Beds.) Glantawe Hospital Management Committee. Applications are invited for the resident post of SENIOR HOUSE OFFICER in the Surgical Unit of the above Hospital. Vacancy 24th August, 1958. The post is recognised under the F.R.C.S. (Eng.) regulations.

Applications, stating age, qualifications and experience, together with copies of 2 recent testimonials, should be forwarded to the Secretary of the Hospital.

T. E. JONES, Group Secretary.

SWINDON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications invited for 2 appointments of SENIOR HOUSE OFFICER as Casualty Officer and Orthopædic House Surgeon at Great Western Hospital, Swindon, vacant early in September. Posts recognised by R.C.S. for 6 months of year's training under Fellowship regulations. Work of Accident and Orthopædic Department, associated with Nuffield Orthopædic Centre, Oxford, includes large number of industrial injuries. Salary £819 10s. p.a., less residential emoluments.

Full details and names of 3 referees to Secretary, 7, Okus-road, Swindon, Wilts.

SWINDON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications invited for post of RESIDENT HOUSE SURGEON for general surgical unit of 80 Beds at Victoria Hospital, Swindon. Recognised for F.R.C.S and training under pre-registration internship regulations. Married accommodation is available.

Full details, giving names of 3 referees, to Secretary, 7, Okus-road, Swindon.

TAUNTON AND SOMERSET HOSPITAL. Applications are invited for the post of SENIOR HOUSE OFFICER (casualty and orthopædic).

Applications, stating age, nationality and qualifications, together with the names of 2 referees, should be forwarded to the Group Secretary, Taunton Hospital Management Committee, Taunton and Somerset Hospital, Musgrove Park Branch, Taunton, Somerset.

TAUNTON AND SOMERSET HOSPITAL, Taunton, SOMERSET. (423 Beds.) HOUSE OFFICER (general surgery) required. Pre-registration post recognised for F.R.C.S., vacant now.

Applications, stating age, nationality and qualifications, to the Group Secretary, Taunton Hospital Management Committee, c/o Musgrove Park Hospital, Taunton.

TORQUAY. TORBAY HOSPITAL. Resident Casualty OFFICER (Senior House Officer status) required August, 1958. Post recognised for F.R.C.S. purposes. There is a complement of 6 Resident House Officers.

Applications, stating qualifications, nationality, age (quoting Ref. F. 955/86), with copy testimonials, to the Group Secretary, Torquay District Hospital Management Committee, Torbay Hospital, Torquay, S. Devon.

TORQUAY. TORBAY HOSPITAL. (180 general beds.) RESIDENT HOUSE OFFICER (surgical), Male or Female, required early September, 1958. Post recognised for F.R.C.S. and pre-registration purposes. There is a complement of 6 Resident House Officers.

Applications, stating qualifications, nationality, and age, together with copy testimonials (quoting reference F.955/84) to the Group Secretary, Torquay District Hospital Management Committee, Torbay Hospital, Torquay, S. Devon.

TUNBRIDGE WELLS (near). PEMBURY HOSPITAL, PEMBURY, KENT. (357 Beds.) TUNBRIDGE WELLS GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications invited for pre-registration post of ORTHOPÆDIC HOUSE SURGEON. 6 months' appointment. Vacant now.

Apply, giving details of age, experience and qualifications, to Surgeon-Superintendent.

TUNBRIDGE WELLS (near). PEMBURY HOSPITAL, PEMBURY, KENT. (357 Beds.) TUNBRIDGE WELLS GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications invited for pre-registration post of HOUSE SURGEON. 6 months' appointment. Vacant now.

Apply, giving details of age, experience and qualifications, to Surgeon-Superintendent.

UXBRIDGE CHEST CLINIC, High-street, Uxbridge, MIDDLESEX. Locum REGISTRAR, whole-time, required for approximately 1 year. Duties mainly at Chest Clinic, but appointment associated with Hillingdon, St. Bernard's, and Southall-Norwood Hospitals. Car would be desirable.

Further information obtainable from the Physician.

WAKEFIELD. PINDERFIELDS GENERAL HOSPITAL. (Regional Thoracic Centre.) Applications invited for positions of SENIOR HOUSE PHYSICIAN and SENIOR HOUSE SURGEON. Salary £819 10s. p.a. £150 p.a. charged for accommodation.

Address written applications, giving full personal particulars, details of experience and 2 names and addresses for reference, to W. BOWRING, Group Secretary, Pinderfields General Hospital, Wakefield.

WAKEFIELD. STANLEY ROYD HOSPITAL. Applications invited for post of JUNIOR HOSPITAL MEDICAL OFFICER or SENIOR HOUSE OFFICER in Psychiatry. Accommodation available for a single person.

Address written applications, giving full personal particulars, details of training, experience, &c., and 2 names and addresses for reference, to W. BOWRING, Group Secretary, Pinderfields General Hospital, Wakefield.

WALSALL HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the following appointments:—

Manor Hospital (340 Beds)
HOUSE PHYSICIAN.

General (Sister Dora) Hospital (181 Beds)
HOUSE PHYSICIAN.
Recognised for pre-registration.

Applications, together with names of 2 referees, to Group Secretary, Walsall General (Sister Dora) Hospital.

WALSALL HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the following appointments:—

Manor Hospital (340 Beds)
HOUSE SURGEON.

General (Sister Dora) Hospital (181 Beds)
HOUSE SURGEON.
Recognised for pre-registration.

Applications, together with names of 2 referees, to Group Secretary, Walsall General (Sister Dora) Hospital.

WARRINGTON INFIRMARY. Applications are invited from Males and Females for the post of RESIDENT CASUALTY OFFICER (graded as Junior Hospital Medical Officer) at the above Hospital. The post is recognised for the F.R.C.S. Scale of salary £852 10s.–£55–£1182 10s. less a deduction of £170 for residential emoluments. A whole-time Senior Hospital Medical Officer is in charge of the Department.

Applications, stating age, experience and qualifications, should be forwarded to—

HENRY L. BOOT, Group Secretary,
Warrington and District Hospital Management Committee,
c/o General Hospital, Warrington, Lancs.

WELSH REGIONAL HOSPITAL BOARD.

REGISTRAR in Anæsthetics, based Bridgend General Hospital. Hospital recognised for F.F.A. R.C.S. Resident non-resident. Vacant 1st December, 1958.

REGISTRAR in Thoracic Medicine, Sully Hospital, Sully, near Penarth, Glamorgan (324 Beds). Regional Centre for Pulmonary Tuberculosis and all other chest and heart conditions, in Adults and Children. Resident non-resident. Vacant 1st September, 1958.

REGISTRAR in General Medicine, Rookwood Hospital, Cardiff (230 Beds).

REGISTRAR (obstetrics and gynæcology). Based East Glamorgan Hospital, Church Village; expected to visit other hospitals in Group. Resident. Vacant 21st September, 1958.

Subject to review end of first year.

Application forms from Senior Administrative Medical Officer, Temple of Peace, Cathays Park, Cardiff, within 14 days.

WATFORD. GROUP 9 PATHOLOGICAL LABORATORY. Applications are invited for the post of NON-RESIDENT PATHOLOGIST (Senior House Officer grade). The appointment is tenable for 1 year in the first instance.

Applications with names of 3 referees, should be sent to the Pathologist in Charge, Group 9 Laboratory, 6, Rickmansworth-road, Watford, Herts.

WATFORD, HERTFORDSHIRE. PEACE MEMORIAL HOSPITAL. (211 Beds.) Applications are invited for the post of HOUSE SURGEON at the above Hospital. This is a pre-registration post and is recognised for F.R.C.S. Salary according to the National Health Service scale. Post vacant mid-July.

Please send copies of recent testimonials, with applications, to the Administrator.

WEST CUMBERLAND HOSPITAL MANAGEMENT COMMITTEE. JUNIOR HOSPITAL MEDICAL OFFICER in Anæsthetics required for work throughout the West Cumberland Group but based on Whitehaven Hospital. Good experience essential, and possession of the D.A. preferred.

Apply, with full information as to qualifications and experience, and giving the names of 2 referees, to the Group Secretary at Workington Infirmary.

WESTON-SUPER-MARE GENERAL HOSPITAL. (104 Beds.) Applications are invited from duly qualified medical practitioners for the pre-registration appointment of HOUSE SURGEON (resident). Immediate vacancy.

Applications, stating age, qualifications, together with names and addresses of 2 referees, should be addressed to the Secretary, Weston-super-Mare Hospital Management Committee.

WEYMOUTH HOSPITALS. West Dorset Group Hospital MANAGEMENT COMMITTEE, SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. MEDICAL REGISTRAR (Registrar grade) required for Weymouth Hospitals, based at Weymouth and District Hospital. Post vacant 1st September, 1958, and tenable for 12 months, with possible renewal for further year. Salary according to experience—£935 or £1016 10s. p.a., with deduction of £170 p.a. if resident.

Application form obtainable from the Group Secretary, West Dorset Hospital Management Committee, Damers-road, Dorchester, Dorset.

WHITEHAVEN HOSPITAL, Cumberland. (122 Beds plus 31 Beds in Annexe.) HOUSE SURGEON, with orthopædic and casualty duties (recognised pre-registration, Senior House Officer grade if appropriate). Vacant beginning of September.

Detailed applications, with dates, names of 2 referees, to Group Secretary, Workington Infirmary, Cumberland.

WIGAN AND LEIGH HOSPITAL MANAGEMENT COM-MITTEE. ASTLEY HOSPITAL, ASTLEY, NEAR MANCHESTER. SENIOR HOUSE OFFICER in Surgery required. Duties include gynæcology and casualty. Resident post. Vacant now.

Apply Secretary, Knowsley House, Wigan.

WIGAN AND LEIGH HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (anæsthetics), resident, for duties at Leigh Infirmary and other hospitals in the Group. Married quarters available. Post recognised for D.A. and F.F.A. R.C.S. examinations.

Applications to Secretary, Wigan and Leigh Hospital Management Committee, Knowsley House, Wigan.

WIGAN AND LEIGH HOSPITAL MANAGEMENT COMMITTEE. WHELLEY HOSPITAL. (71 acute medical beds.) HOUSE PHYSICIAN, pre-registration post.

Applications, with names of 2 referees, to Secretary, Knowsley House, Wigan.

WIGAN AND LEIGH HOSPITAL MANAGEMENT COM-MITTEE.

Royal Albert Edward Infirmary, Wigan
HOUSE SURGEON.

Leigh Infirmary, Leigh
HOUSE SURGEON.

Pre-registration posts.

Applications, with names of 2 referees, to Secretary, Knowsley House, Wigan.

WINCHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. REGISTRAR in Anæsthetics (Registrar grade) required at the Royal Hampshire County Hospital, Winchester, with duties in the Lord Mayor Treloar Group, Alton. Post recognised for the F.F.A. R.C.S. and is resident or non-resident. Vacant mid-August.

Forms of application obtainable from Group Secretary, Royal Hampshire County Hospital, Winchester.

WINDSOR. KING EDWARD VII HOSPITAL. Resident MEDICAL REGISTRAR required immediately.

Application forms from and returnable to Secretary, Windsor Group Hospital Management Committee, Alma-road, Windsor, by 31st July.

WOLVERHAMPTON. THE ROYAL HOSPITAL. (An associated hospital of the Birmingham University Medical School.) Pre-registration HOUSE OFFICER (general surgery). Post vacant immediately. Recognised for F.R.C.S.

Apply, giving age and qualifications and copies of 2 testimonials, to the Secretary.

WOLVERHAMPTON. THE ROYAL HOSPITAL. (An associated hospital of the Birmingham University Medical School.) Pre-registration HOUSE OFFICER (pædiatrics). Post recognised for D.C.H. Vacant immediately.

Apply, giving age and qualifications and copies of 2 testimonials, to the Secretary.

WOLVERHAMPTON. THE ROYAL HOSPITAL. (An associated hospital of the Birmingham University Medical School.) HOUSE OFFICER (pre-registration) E.N.T. Department. Post recognised for the D.L.O. and F.R.C.S. examinations. Vacant 10th September.

Apply, with copies of 2 testimonials, to the Secretary.

WOLVERHAMPTON. THE ROYAL HOSPITAL. House SURGEON for Thoracic Surgery and Casualty. Post recognised for F.R.C.S. Vacant immediately.

Apply, with 2 testimonials, to Secretary.

WORCESTER ROYAL INFIRMARY. House Surgeon (pre-registration or otherwise) required immediately for Orthopædic Department of this busy general hospital of 213 Beds. The appointment offers wide and varied experience.

Applications to Hospital Secretary.

WORCESTER ROYAL INFIRMARY. House Surgeon (pre-registration or otherwise) required for General Surgery post at this busy general hospital of 213 Beds. The appointment offers wide and varied experience and is recognised for the F.R.C.S. examinations.

Applications to Hospital Secretary.

WREXHAM. MAELOR GENERAL HOSPITAL (591 Beds) and WAR MEMORIAL HOSPITAL, WREXHAM (230 Beds). Applications are invited for HOUSE PHYSICIAN posts at the above Hospitals, to commence 1st August, 1958. The appointments are recognised for pre-registration purposes.

Applications, stating age, nationality, qualifications and experience, together with copies of 2 recent testimonials, should be addressed to the Group Secretary, Wrexham, Powys and Mawddach Hospital Management Committee, Maelor General Hospital, Wrexham, Denbighshire.

WREXHAM. MAELOR GENERAL HOSPITAL (591 Beds) and WAR MEMORIAL HOSPITAL, WREXHAM (230 Beds). Applications are invited for HOUSE SURGEON posts at the above Hospitals, duties to commence on 1st August, 1958. The appointments are recognised for the Diploma of F.R.C.S. (England, Edinburgh and Ireland) and are pre-registration posts.

Applications, stating age, nationality, qualifications, and experience, with copies of 2 recent testimonials, to be sent to the Group Secretary, Wrexham, Powys and Mawddach Hospital Management Committee, Maelor General Hospital, Wrexham, as soon as possible.

WREXHAM. MAELOR GENERAL HOSPITAL. (591 Beds.) Applications are invited for the post of PÆDIATRIC HOUSE PHYSICIAN at the above Hospital, to commence 1st August, 1958. The appointment is recognised for the D.C.H. and for pre-registration purposes.

Applications, stating age, nationality, qualifications and experience, together with copies of 2 recent testimonials, should be addressed to the Group Secretary, Wrexham, Powys and Mawddach Hospital Management Committee, Maelor General Hospital, Wrexham, Denbighshire.

WREXHAM (near). TREVALYN MANOR MATERNITY HOSPITAL, ROSSETT, near WREXHAM. (47 Beds.) Applications are invited for the post of HOUSE SURGEON at the above Hospital, to commence duties on 1st September, 1958. The Hospital is a Part II Midwifery Training School and deals with normal and abnormal midwifery.

Applications, stating age, nationality, qualifications and experience, with copies of 2 recent testimonials, to be sent to the Group Secretary, Maelor General Hospital, Wrexham, as soon as possible.

YORK. COUNTY HOSPITAL. (266 Beds, general.) 2 Pre-registration HOUSE SURGEONS required for the above Hospital. Posts are vacant now and are tenable for 6 months.

Applications, giving names of 2 referees or 2 copy references, to Group Secretary, York A and Tadcaster Hospital Management Committee, Bootham Park, York, immediately.

YORK. MATERNITY AND FULFORD HOSPITALS. SENIOR HOUSE OFFICER in Obstetrics and Gynæcology required from 15th October. Post is recognised for M.R.C.O.G.

Applications, stating age, qualifications, experience, nationality and names of 2 referees, to Group Secretary, York A and Tadcaster Hospital Management Committee, Bootham Park, York.

TASMANIA. LAUNCESTON GENERAL HOSPITAL. Applications are invited from qualified medical practitioners for the following positions:—

REGISTRAR in Medicine.
REGISTRAR in Radiology.
REGISTRAR in Pathology.

Duration of appointment 1 year. Consideration may be given to extending the appointment for a second year, provided service has been satisfactory during the first year.

Salary £1531 10s. p.a. Registrars who obtain a higher degree will be paid £200 p.a. in addition to the above salary.

Board, residence, and laundry are provided free. Single quarters only are available. Travelling arrangements made.

The Launceston General Hospital is recognised as a training school for higher qualifications by the Royal College of Surgeons (England), the Royal Australian College of Surgeons, the Royal College of Obstetricians and Gynæcologists (for gynæcology only), the Royal College of Physicians and Surgeons for Diploma in Anæsthetics, the University of Melbourne for Diploma in Diagnostic Radiology, The College of Radiologists of Australasia for their Diploma, the University of Sydney for Diploma in Clinical Pathology and Diploma in Anæsthetics.

Further particulars may be obtained by writing to the General Superintendent. B. W. GRIFFITHS, Secretary.

NEW YORK. NEW ROCHELLE HOSPITAL, New ROCHELLE, NEW YORK, U.S.A. (383-Bed general community hospital.) Approved by the Joint Commission on Accreditation of Hospitals. Also approved by the American College of Surgeons and American Medical Association for Internship and Residency training. Only graduates from approved university schools accepted. Internships available for the 1-year term commencing 1st July, 1958. Stipend is $200 per month plus complete maintenance.

Apply Superintendent.

Public Appointments

LONDON COUNTY COUNCIL. Applications are invited from medical practitioners practising in East London under National Health Service for appointment as VISITING MEDICAL OFFICER to Home for the Aged, Eastway Estate, Hackney, for 79 old and infirm people. Remuneration £40 a year, plus fees receivable from executive council in respect of residents and resident staff who may be on National Health Service list.

Particulars and application form from Medical Officer of Health (PH/D.1/B/1342), County Hall, S.E.1, returnable by 11th August. (1342.)

FACTORY DOCTORS. Factories Acts, 1937 and 1948. The following appointments as Appointed Factory Doctor are vacant. Apply to Chief Inspector of Factories, 19, St. James's-square, London, S.W.1.

District	*County*	*Latest date for receipt of applications*
AMPTHILL . .	BEDFORD . .	9TH AUGUST, 1958
MELTHAM . .	YORK . .	9TH AUGUST, 1958
GALASHIELS	SELKIRK . .	9TH AUGUST, 1958
SHILDON . .	DURHAM . .	9TH AUGUST, 1958
DISS . .	NORFOLK . .	9TH AUGUST, 1958
PAIGNTON . .	DEVON . .	9TH AUGUST, 1958
NEWNHAM	GLOUCESTER	9TH AUGUST, 1958
SEDGLEY . .	STAFFORD	9TH AUGUST, 1958
KIRKCOWAN	WIGTOWN	16TH AUGUST, 1958
NEWTON STEWART	WIGTOWN	16TH AUGUST, 1958

DEWSBURY. COUNTY BOROUGH OF DEWSBURY. Applications are invited for the appointment of DEPUTY MEDICAL OFFICER OF HEALTH AND DEPUTY PRINCIPAL SCHOOL MEDICAL OFFICER of the County Borough of Dewsbury. Applicants should be registered medical practitioners, and possession of a Diploma in Public Health is desirable. Preference will be given to candidates approved previously by the Ministry of Education for ascertainment of educationally subnormal children. The salary is £1303 6s. 8d. by 4 increments of £55 to £1523 6s. 8d. p.a., plus a car allowance (at present £112 p.a.). Previous experience will be taken into consideration in determining the commencing-point on this scale. Housing accommodation will be available if required. The appointment is permanent and superannuable and the successful candidate will be required to pass a medical examination.

Particulars of the duties and other conditions of the appointment, together with application forms, may be obtained from the Medical Officer of Health, Municipal Buildings, Halifax-road, Dewsbury, Yorkshire, to whom applications should be sent on or before Saturday, 30th August, 1958.

Town Hall, Dewsbury. A. NORMAN JAMES, Town Clerk.

MIDDLESEX COUNTY COUNCIL. County Health DEPARTMENT. ASSISTANT MEDICAL OFFICER (whole-time) required initially in Area 4 (Finchley and Hendon). Duties concerned with the supervision of the health of mothers and young children and the School Health Service. Diploma in Public Health or in Child Health. Previous local authority experience advantage. Salary £1050–£50 (3)–£55 (5)–£1475 p.a. inclusive. Established, pensionable, subject to medical assessment. Prescribed conditions.

Apply, stating age, qualifications, experience and names of 2 referees, to Area Medical Officer, Town Hall, Hendon, N.W.4, by 30th August. (Quote X.866 TL.) Canvassing disqualifies.

NOTTINGHAMSHIRE COUNTY COUNCIL. Public HEALTH DEPARTMENT. Appointment of Medical Officer. Applications invited from registered medical practitioners (either sex) for the whole-time appointment of SENIOR CLINICAL MEDICAL OFFICER. Salary within the scale £1250 p.a.–£50–£1400–£55–£1510–£65–£1575, subject to a maximum commencing salary of £1400 p.a.

Applicants should:

(*a*) Possess the D.P.H., D.C.H., or comparable qualification.

(*b*) Have had at least 3 years' experience as whole-time Clinical Medical Officer in the Antenatal, Child Welfare and School Health Services of a Local Authority since July, 1948.

(*c*) Have been approved by Ministry of Education for, and have had substantial experience in, the ascertainment of educationally subnormal children.

Application forms and conditions of appointment from the County Medical Officer, County Hall, West Bridgford, Nottingham. Applications by 18th August, 1958.

A. R. DAVIS, Clerk of the County Council.

SWINDON. BOROUGH OF SWINDON. Appointment of Deputy Medical Officer of Health and School Medical Officer. Applications are invited from duly qualified medical practitioners holding a Diploma in Public Health or similar qualification, for the appointment of DEPUTY TO THE MEDICAL OFFICER OF HEALTH AND PRINCIPAL BOROUGH SCHOOL MEDICAL OFFICER, who is also Area Medical Officer under the Wiltshire County Council. The salary is at the rate of £1396 4s. 3d. p.a., rising by 2 increments of £60, 2 of £57 14s. 7d., and 1 of £31 16s. 5d. to a maximum of £1663 9s. 10d. p.a. Housing accommodation may be offered.

Applications, together with the names of 3 persons to whom reference may be made, must be submitted to the Town Clerk, Civic Offices, Swindon, by 8th August, 1958. Further particulars will be supplied on request.

COMHAIRLE CONNDAE NA MIDHE. Applications are invited from suitably qualified persons for the temporary post of REGISTRAR (surgical), Our Lady's Hospital, An Uaimh. The appointment, which will be for a period of 1 year, will be subject to sanction by the Minister for Health. Rate of remuneration as recommended by the Department of Health.

Completed applications on the prescribed forms, which may be obtained from the Chief Officer, Health and Assistance Sections, Meath County Council, An Uaimh, must be received not later than 5 P.M. on Tuesday, 5th August, 1958.

CORK. COUNTY OF CORK. Vacancies for House SURGEONS.

(*a*) St. Stephen's Hospital, Sarsfieldscourt, Cork.

(*b*) County Hospital, Mallow.

Application forms and particulars may be obtained from the County Manager, Courthouse, Cork, with whom completed applications should be lodged not later than 12 o'clock noon on Saturday, 9th August, 1958.

DUBLIN. Local Appointments Commission. Vacancy for CASTLEREA MEDICAL SUPERINTENDENT under the Ballinasloe Mental Hospital Board. Salary scale £1451–£1557 plus emoluments value £130. Age limits 35–50 years with extensions in certain cases.

Application forms and particulars from the Secretary, 45, Upper O'Connell-street, Dublin. Latest time for receiving completed application forms 5 P.M. on 15th August, 1958.

YORKSHIRE. COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE. Appointment of County Medical Officer of Health. The County Council of the West Riding of Yorkshire invite applications for the appointment of MEDICAL OFFICER OF HEALTH AND PRINCIPAL SCHOOL MEDICAL OFFICER for the County. The salary will be £3285 p.a., rising by 3 annual increments of £105 and 1 of £55 to £3655 p.a. Candidates must not only be duly qualified as prescribed by the Local Government Act, 1933, but must also possess considerable administrative ability and a wide knowledge and experience of the organisation of public health services.

The prescribed form of application with terms and conditions of the appointment may be obtained from the undersigned. Applications on the form provided, together with copies of not more than 3 recent testimonials, should be sent marked "Confidential", not later than 30th September, 1958, addressed to the Clerk of the County Council, County Hall, Wakefield. Canvassing, directly or indirectly, will be a disqualification.

BERNARD KENYON, Clerk of the County Council.

County Hall, Wakefield. July, 1958.

FALKLAND ISLANDS. Medical Officer required for general hospital duties in Stanley or as District Medical Officer in West or East Falklands. R practitioners, i.e. practitioners liable for call-up under National Service Acts, may apply and, if appointed, will be granted indefinite deferment of call-up on completion of minimum tour of 2 years. Appointment on pensionable terms or on agreement for 3 years; or from National Health Service with retention of superannuation rights up to 6 years plus gratuity (taxable) of 20% of aggregate salary. Salary scale £880–£1180 p.a. Minimum entry-point £940, with additional increments for experience. Small allowance paid for children; minimum of 2 children to qualify. Education allowance also payable. Quarters provided—at rental of 5% of salary in Stanley, but free for Medical Officer employed in the districts. Free passages for officer, wife and family, up to 3½ passages in all. Very low income-tax.

Application forms from Director of Recruitment, Colonial Office, London, S.W.1 (quoting BCD.117/50/02).

TASMANIA. DEPARTMENT OF HEALTH SERVICES. Applications are invited for 2 posts of whole-time employed PSYCHIATRISTS attached to the Department of Health Services.

Each application should be accompanied by 2 recent testimonials and the names of 2 referees.

Qualifications: Applicants must possess medical qualifications registrable with the Medical Council of Tasmania and preference will be given to applicants holding the D.P.M. or equivalent qualification.

Duties: On appointment, the successful applicants will be seconded for duties at Lachlan Park Mental Hospital and will be responsible to the Director of Mental Health through the Medical Superintendent of the Hospital.

Nature of appointments: The appointments are not made under the Public Service Act. Termination of appointment is subject to 3 months' notice by the appointee or the Director-General of Health Services. No private practice is permitted.

Salary: At the rate of £A3600 p.a.

Accommodation: Furnished residences are available for both Psychiatrists on a rental basis.

Superannuation: Is available.

Leave: 28 days' annual recreational leave is granted.

Inquiries and applications should be lodged with the Official Secretary, Office of the Agent-General for Tasmania, 457, Strand, London, W.C.2.

TASMANIA. DEPARTMENT OF HEALTH SERVICES. Applications are invited from registered medical practitioners for appointment as Part-time PSYCHIATRIST to the Department of Health Services in Hobart.

Qualifications: At least a few years' experience in the practice of psychiatry is essential and the possession of a Diploma of Psychological Medicine is desirable.

The successful applicant will be required to devote 5 sessions per week (each of 4 hours) or the equivalent in clinical psychiatric work in Hobart for the Department of Health Services. The work will include work with both adults and children, the psychotic, neurotic and mentally defective, and court and gaol psychiatry.

This appointment presents a unique opportunity to enable a Specialist in Psychiatry to establish himself in private specialist practice in Hobart, as there is at present no Psychiatrist practising privately.

The appointment will be for 2 years in the first instance. Salary is at the rate of £1500 p.a. 4 weeks' annual leave is granted.

Applications, stating qualifications, experience and personal particulars, together with copies of 3 recent references, should be lodged with the Official Secretary, Office of the Agent-General for Tasmania, 457, Strand, London, W.C.2.

Hospital Services: Non-Medical Appointments

NEWCASTLE. THE UNITED NEWCASTLE UPON TYNE HOSPITALS. Applications are invited from suitably qualified persons for the post of SECRETARY to the Board of Governors which becomes vacant on 31st March, 1959, due to the retirement of the present holder. The undergraduate Teaching Hospital scale (£2170–£2671) will be applicable. The Teaching Hospital Group comprises the Royal Victoria Infirmary (680 Beds), the Princess Mary Maternity Hospital (106 Beds), the Babies Hospital (35 Beds), the Dental Hospital, all in Newcastle upon Tyne, and the Castle Hill Convalescent Home (97 Beds) at Wylam. Candidates should possess wide experience in a senior administrative capacity.

Candidates should forward under confidential cover 15 copies of their application, with full details of age, educational qualifications and experience, together with the names of 3 referees, by 20th September, 1958, to the Chairman of the Board of Governors, Royal Victoria Infirmary, Queen Victoria-road, Newcastle upon Tyne, 1.

General Practice

For an Executive Council post (England and Wales) apply on form E.C.16A obtainable from the council. Mark envelope "Vacancy."

LIVERPOOL. TOXTETH PARLIAMENTARY DIVISION. Applications invited for a MEDICAL PRACTICE. Doctors (man and wife in partnership) retiring. Lists approximately 1300 and 900 respectively. Apply on Form E.C.16A to the undersigned by Tuesday, 12th August, 1958.

J. G. DONCASTER, Clerk, Liverpool Executive Council.

36, Princes-road, Liverpool, 8.

Appointment: Too Late for Classification

ALTON, HAMPSHIRE. HENRY GAUVAIN HOSPITAL. (112 Beds.) ALTON GROUP HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER required for the above Hospital for a period in the first instance of 6 months. Post vacant 1st August, 1958. Non-pulmonary tuberculosis, orthopædic and general surgery. Primary or Final F.R.C.S. candidate preferred, married or single, to live in small cottage on estate.

Applications, together with the names and addresses of 3 referees, to Hospital Secretary, Henry Gauvain Hospital, Alton, Hants.

Miscellaneous

A large Pharmaceutical Company has a vacancy in the Medical Department for a Medical Practitioner (Male). A higher medical qualification would be an advantage but is not essential. The suitable applicant would be required to carry out those duties normally associated with this type of appointment, including initiating and progressing clinical investigations. The work involves a certain amount of travel both in the United Kingdom and abroad. The Company operates a non-contributory pension scheme. Starting salary £1750.

Write, giving full details, to Address No. 414, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

The Medical Defence Union. Applications are invited from registered medical practitioners, not exceeding 35 years of age, for appointment as an Assistant Secretary to the Medical Defence Union. The salary scale will range from £1750, rising by annual increments of £50 to £2000 p.a., and the successful applicant will be placed at a point on that scale according to his experience and qualifications for the appointment. The practitioner selected will be required to submit to a medical examination, and to contribute to the Union's superannuation fund.

Applications (12 copies), stating age, qualifications and medical experience, together with the names of 3 persons to whom reference can be made for further information, should reach the Secretary, The Medical Defence Union, Tavistock House South, Tavistock-square, W.C.1, not later than 30th September, 1958.

CONSULTING PATHOLOGIST

required by National Iranian Oil Company Limited to supervise and direct the Pathological Department in South Persia based in Abadan Hospital. All types of investigations including histology, microbiology, bacteriology, chemistry, serology and hæmatology, as well as water, milk and food analyses, are carried out. Applicants should have a higher medical qualification and/or a Pathological Diploma, and have had 8 years' training and practice in the specialty. Ability to train personnel in the department is important. Age 35–50. Married accommodation and family passages available. 2-year assignment, with a possible extension after paid home leave. Salary not less than £3900 a year.

Apply, with brief details for further information, to Manager, Personnel Department, IRANIAN OIL SERVICES LIMITED, 3, Finsbury-square, London, E.C.2.

Medical Officers required by Falkland Islands Dependencies Survey for tour of 30 months in Antarctic bases. Unique opportunity for research on polar physiology; suitable candidates will be given research training at Division of Human Physiology, National Institute for Medical Research, London. To leave U.K. October, 1958. Salary £625 a year. Free passages, quarters, messing and canteen stores. Liberal leave on full salary. Candidates must possess qualifications registrable in United Kingdom. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M3C/44633/LD.

Visiting Medical Officer with industrial experience required for 2 London factories (W.3 and W.10). 2 sessions per week at each factory. B.M.A. remuneration. Write full particulars, in strict confidence, to Box TL.555, c/o 191, Gresham House, E.C.2.

Wanted, private practice or partnership N.H.S. practice with view to succession, London or radius 25 miles. Ample capital for house purchase.—Address, No. 413, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Part-time Secretary wanted for psychiatric research for about 1½ days per week. Most of work could be done at home in own time. High speeds in shorthand/typing essential.—Apply in writing, stating salary required, to Address No. 415, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Part-time Consulting Rooms to be Let in Harley-street. Rents from £50 per half-day session. Apply: ELLIOTT, SON AND BOYTON, 86/87, Wimpole-street, London, W.1. WEL. 8367.

"Pregnancy Diagnosis by the Xenopus Method," 24-hour service. Send specimens of urine and £2 2s. fee. Hæmatology, Biochemistry, Flame Photometry.—WELBECK BIOLOGICAL LABORATORIES, 26, Park-crescent, Portland-place, W.1 (MUSeum 5386–7).

Doctors requiring applications, theses copied: Write to MANTON (WESTMINSTER) LTD., 98, Victoria-street, S.W.1 (VIC. 0141), who are specialists.

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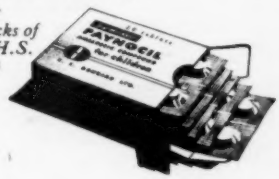

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